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# LUNAR ORBITER III

# POSTMISSION PHOTO SUPPORTING DATA

Prepared for the

NATIONAL AERONAUTICS AND SPACE ADMINISTRATION

Langley Research Center

by

THE BOEING COMPANY

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Contract No. NAS1-3800

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# LUNAR ORBITER III
# FINAL REPORT

## 1.0 INTRODUCTION

### 1.1 PURPOSE AND SCOPE

This document is one of a series of seven reports covering the mission evaluation and supporting data obtained during each Lunar Orbiter mission.

This volume describes and tabulates the photo supporting data for each of the Lunar Orbiter III photos and is based upon post-mission analysis of orbit, trajectory, and spacecraft performance factors.

### 1.2 SUMMARY

A brief discussion of the general concepts and methods employed to derive the photo supporting data and other parameters for the Mission III photos are presented in the two main sections of this document.

*Supporting Data Information*—This section defines the parameters contained in the photo evaluation computer program (EVAL), the version of the ephemeris data used, and summarizes the sources of input data required for computation of the photographic supporting data.

*Supporting and Evaluation Data*—This section includes the input data not duplicated within other documents. Also included are the output listings of the EVAL computer program for each photo.

### 1.3 APPLICABLE DOCUMENTS

- D2-100427-2, FPAC Software System: Guide to User Programs, in publication.
- D2-100748-1, P-9 Mission Error Analyses, February and March 1967, dated January 24, 1967
- D2-100753- , All Mission III Final Reports covered by this series.

# 2.0 SUPPORTING DATA INFORMATION

## 2.1 EVALUATION PROGRAM AND EPHEMERIS VERSION USED

The version of the planetary ephemeris data used—designated Developmental Ephemeris 19 (copy 11181—L O library tape)—is documented in a JPL technical memorandum: TM 162, Section 314, dated April 13, 1967, by C. L. Lawson.

The version of EVAL used is in the Lunar Orbiter F.1 software system.

## 2.2 TYPES AND SOURCES OF INPUT DATA

EVAL inputs data from both card and magnetic tape. These inputs are grouped into the following five specific categories.

1) State vectors—spacecraft position and velocity at a reference time;

2) Attitude maneuvers executed from a known attitude reference—either celestial or nonstandard cruise;

3) Photo times;

4) Planetary constants;

5) Spacecraft constants.

The state vector, in selenocentric coordinates, for each photo sequence was obtained by processing tracking data arcs which encompassed the actual photo exposure times. This state vector was computed at the epoch time stated in the orbit determination report. Integration of the vector to approximately 1 minute before the exposure time was computed based on the Langley Research Center lunar harmonics dated November 11, 1966 as modified by the harmonics solved for in the orbit determination computations. These same lunar harmonics were used to integrate the state vector in the EVAL computer program. This method provided accurate spacecraft position and velocity input data as the basis for computing the photo supporting data.

The relative position of the photo site coordinates with respect to the lunar orbit and the orientation of the spacecraft axis with respect to the celestial references are the basis for the designed photo maneuvers. Spacecraft maneuver control for Lunar Orbiter III was based on the concept of a celestial (Sun-Canopus-spacecraft) attitude update during each orbit. The roll axis orientation was accurately established by closed-loop tracking of Canopus during the Sun occultation period. Known spacecraft drift rates and biases were added to the design maneuver during the computations of the maneuver commands so that the camera axis would be pointed at the photo site at the commanded time. During the photo taking sequences, the flight control limit cycle was selected to maintain the spacecraft attitude within $\pm 0.2$ degree of the commanded values.

Procedures employed in computing the photo supporting data were based on determining the state vector approximately 1 minute prior to the camera-on time. From this initial condition the state vector was integrated ahead to the actual exposure time with the spacecraft oriented to the celestial references. At the actual camera-on time the spacecraft axes were rotated by the design maneuver magnitudes (command maneuvers minus spacecraft characteristics) and the supporting data computations made. Each successive photo in a multiframe sequence was computed in a similar manner, namely: integrating the state vector ahead to each successive actual exposure time, rotating the spacecraft axes by the same values, and computing the supporting data. The sequences and magnitudes of the designed maneuvers which reflect the actual attitudes obtained and the actual harmonic coefficients employed to integrate the state vector appear in each deck input listing of Section 3.3.

With few exceptions, photo times, exact to 0.1 second, were obtained from the timing lights exposed on the film. These times correspond to the actuation of the wide-angle shutter. The telephoto camera focal-plane shutter was actuated a nominal 0.040 second earlier. When the actual exposure time was not available for a single photograph of a series, the exposure time was biased from the commanded time of the exposure by a value determined from a comparison of actual and commanded times for the remaining frames in the sequence. For those cases where the exposure time for the complete sequence was not available, the commanded times were adjusted to include any photo subsystem systematic effects determined by a comparison of actual and commanded exposure times of other sequences. The actual photo times used for supporting data computation appear on each deck input listing of Section 3.3 and also at the top of the EVAL computer output listing included in Section 3.4.

Planetary data, influencing the trajectory of the spacecraft, were taken from a magnetic ephemeris tape provided by the Jet Propulsion Laboratory. It contains the most recently established positions and velocities of the Sun, planets, and the Moon. These include refined estimates of the planetary gravitational relationships and Eckert's corrections to the lunar ephemeris. To satisfy the Earth-Moon constraint equation that relates the gravitational constants of each body, the radius of the Earth and sine parallax, new values were used by EVAL to properly scale the ephemeris. The included GENI listing reflects these new constants.

The lunar gravitational field is represented by an expansion of spherical harmonics. The harmonic coefficients were obtained from NASA LRC and are referred to as the LRC 11 11 harmonics.

The spacecraft constants are determined and supplied by the Lunar Orbiter preflight test and checkout results.

## 2.3 SOURCES OF UNCERTAINTIES

It must be recognized that the photo supporting data given in Section 3.4 is accurate only to the extent that the input data is error free and the assumptions made in the computations are valid. For each Lunar Orbiter mission, the preflight error analysis document describes the execution and operational errors; the computational assumptions are detailed in the appropriate documentation of the Lunar Orbiter flight path analysis and command software system. A significant assumption in these computations is that the Moon is a perfect sphere of radius 1,738.09 kilometers.

A meaningful detailed error analysis of the parameters listed cannot be made because of the numerous uncertainties present. The magnitude of these uncertainties is not known because they require extensive analysis and interpretation of data obtained concurrently with the Lunar Orbiter photos. The computer listings show the supporting data parameters to many decimal places. They are the result of computer computations and are not to be considered as indicating confidence to the accuracy indicated. The following sources of error that degrade the EVAL data are recognized.

*State Vector*—Errors due to ODPL noise, station location uncertainties, frequency and time biases, lunar model uncertainty, planetary ephemeris uncertainties, and effect of spacecraft attitude maneuvers on the raw tracking data.

*Spacecraft Attitude*—Errors due to the difference between the commanded and actual angles due to spacecraft dynamics and drift rates and the flight control limit cycle dead band of ±0.2 degree.

*Camera Pointing*—In conjunction with the above areas, some uncertainty exists due to alignment tolerances of camera axes, Sun and Canopus sensor locations, and other spacecraft constants.

*Camera-On Time*—Errors due to correlation between the spacecraft clock and GMT, spacecraft clock drift, and the 0.1-second clock interval.

*Computational Noise*—Errors from computational roundoff, truncation errors (especially in SELGRA which ODPL uses to obtain the 1950.0 state vectors).

*Footprint Location*—Errors due to the assumed spherical Moon, the uncertainty of the actual V/H value controlling exposure, lens distortion, and the accumulative effect of all of the above sources.

## 2.4 DEFINITION OF EVALUATION PROGRAM OUTPUT

The following are definitions of the photographic evaluation program output (refer to Figures 2.4-1 and 2.4-2.)

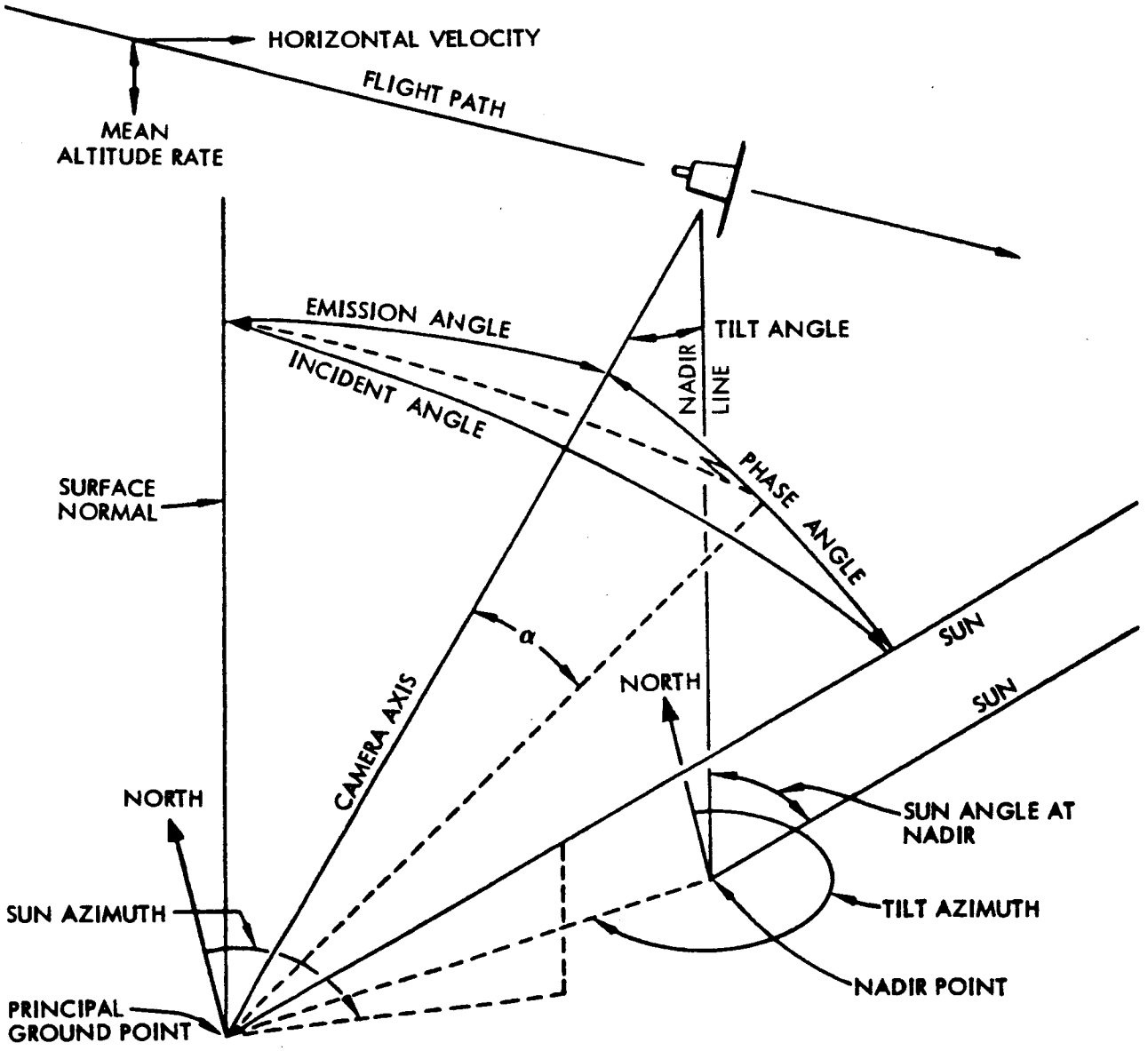


Figure 2.4-1: Geometry of Photographic Parameters

Alpha—Angle that is the projection of surface normal into phase angle plane; it represents tilt of surface toward or away from Sun.

Camera Axis (Slant Distance)—Direction cosines and magnitude (selenographic of date) of camera axis at time of photo.

C1, C2, C3, C4—Direction cosines and magnitude (selenographic of date) of vectors from spacecraft to photo corners.

Direction Cosines to Target—Direction cosines and magnitude (selenographic of date) of vector from spacecraft to point targets.

Emission Angle—Angle between surface normal and camera axis. Also, angle between photo image plane and subject plane.

Forward Overlap Ratio—Ratio of amount of overlap to telephoto frame dimension along direction of flight path.

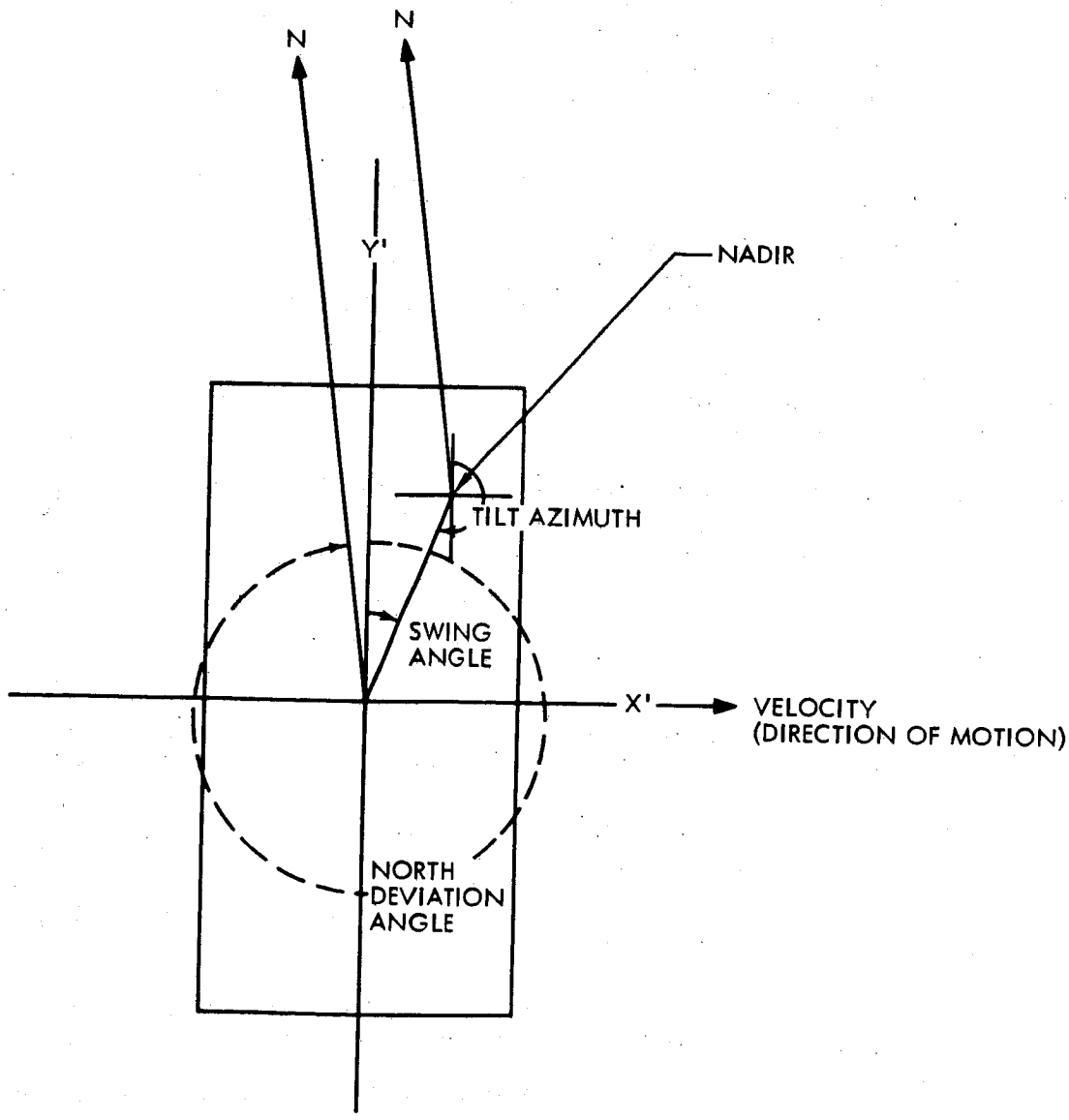


Figure 2.4-2: Camera Film Geometry

Horizontal Velocity -That component of spacecraft velocity perpendicular to a radial line through spacecraft and in direction of flight path.

Image Motion Compensation (V H)—Instantaneous rate of movement of image across focal plane, a function of spacecraft velocity, its height above surface (V H ratio), and lens focal length.

Incidence Angle—Angle between surface normal and Sun's rays.

Longitude (latitude) Arc Length to Target—Arc distance measured on lunar surface between meridian (parallel) through spacecraft nadir and meridian (parallel) through target (plus is east longitude or north latitude).

Longitude (latitude) of Camera Axis Intersect—Selenographic longitude (latitude) of point on Moon surface intersected by camera axis (plus is east longitude or north latitude).

Longitude (latitude) Distance to Target—Angular distance in longitude (latitude) between camera axis intersect and point target.

Longitude (latitude) of Nadir Point—Selenographic longitude (latitude) of point on Moon's surface directly below spacecraft.

Mean Altitude Rate—Rate of change of altitude with respect to time.

Nadir—Intersection of a line between the spacecraft and the center of the Moon with the Moon's surface.

North Deviation Angle—Deviation of north from cross frame (cross) film axis (Y-axis) measured clockwise.

Phase Angle—Angle between camera axis and Sun's rays.

Principal Ground Point—Intersection of camera axis with lunar surface.

Resolution Constant—Theoretical ground resolution of telephoto photographs. Wide-angle-lens resolution is larger by a factor of 8. Resolution constant is equal to actual altitude in km, divided by 46 (nominal altitude giving 1-meter resolution on telephoto photographs).

Scale Factor—Proportionality constant to relate dimensions on spacecraft film to dimensions on lunar surface (focal length/altitude). Given for both 80- and 610-mm camera systems.

Side Overlap Ratio—Ratio of amount of overlap to frame dimension perpendicular to flight path (e.g. on adjacent orbits).

Spacecraft Altitude—Altitude of spacecraft above Moon surface.

Spacecraft Radius—Distance from spacecraft to Moon center.

State Vector—Spacecraft position and velocity components in selenocentric 1950.0 coordinates.

Sun Angle at Nadir—Angle between spacecraft/nadir line and Sun's rays.

Sun Arc at Nadir—Arc length from nadir point to intersection on lunar surface of Moon center to Sun centerline.

Sun Azimuth at Principal Ground Point—Azimuth of Sun's rays at camera axis intersection, measured clockwise from north.

Surface Normal—Line normal to Moon surface at point of camera axis intersection.

Swing Angle—Angle between cross-axis of film frame (the Y′ axis) and line from center of frame to image of nadir point. Measured positive clockwise from positive Y′ axis.

Tilt Angle—Angle between camera axis and spacecraft/nadir line.

Tilt Azimuth—Azimuth of principal ground point from spacecraft nadir.

Tilt Distance—Distance from image of camera axis intersect to image of nadir point measured on spacecraft film. Given for both high- and low-resolution frames. Computed at the scale of the spacecraft film.

Time between Photos—Predicted time between exposure of current frame and preceding frame taken in film sequence based on V H at time of current frame.

Time from Periapsis—Time in seconds before (minus) or after (plus) periapsis passage.

True Anomaly—Angle in orbital plane measured from pariapsis to spacecraft in direction of motion.

Photo Footprint—Numbered asterisks that appear on printout which represent four corners of photo frames as projected on lunar surfaces. Adjacent to each asterisk is longitude and latitude of that corner of footprint; between asterisks is surface distance in kilometers between those corners. For those exposures where a corner of the photo is off the surface of the Moon, the corner coordinate is indicated by zeros and a notation is provided in the printout data.

44 Points—A listing of the latitude and longitude of 44 equally spaced angles along the photo periphery. Points 1, 12, 23, and 34 correspond to the four corners of the photo. In those cases where a point falls off the surface of the Moon, the coordinate values are indicated as zero. These points are given for both the high- (telephoto) and moderate- (wide-angle) resolution photos.

# 3.0 SUPPORTING AND EVALUATION DATA

## 3.1 LISTING OF SPACECRAFT AND PLANETARY CONSTANTS

This section contains a listing of the values of all constants contained within the link GENI to the user program GENL. These constants include spacecraft and planetary constants which are used by the photographic evaluation program EVAL.

Although this data is not required for the use of the photographic evaluation data, it is included for purposes of reference to the constants being used by the evaluation program.

```
* GENL INITIALIZATION FOR MISSION III POST FLIGHT PHOTO EVALUATION *   (4
COMMAND=
     (INIT)
       (EPHEMT)
        (PRINT)
         (NOCARD)
TITLE=(EPHEMERIS FOR FEBRUARY, MARCH, AND APRIL OF 1967)
EPOCH=1.,67.,2.,1.,0.,0.,0.
TAPEDT=.5
ETUT=37.4
RESCL=6378.1495
LAUNCT=1.,67.,2.,5.,1.,17.,1.12
WEIGHT=900.,850.,800.,750.,700.,650.,600.,550.,500.
CG1=208.3,210.0,211.9,213.8,215.7,217.7,219.9,221.3,224.9
CG2=.051,.057,.064,.069,.075,.080,.085,.092,.098
CG3=.022,.026,.031,.035,.039,.043,.046,.051,.055
PHIH=.09,200.2
PHIC=90.02,0.0
PHIF=19.92,90.12
PHIK=109.92,90.05
HGDZ=-.997,-.080,0.0
HGD9=0.,0.153,0.988
TIRU=1.0,0.0,0.0,0.0,1.0,0.0,0.0,0.0,1.0
* END OF GENI INITIALIZATION DECK *                                   (0
```

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| TAPEDT | 0.5000000E 00 | 173000000000 | 0.2439613E 07 | | | | |
| EPETUT | 000000000000 | | | | | | |
| LET | 12 | | | | | | |
| CENT | 0.1000000E 01 | | | | | | |
| EBODB | 000000000000 | | | | | | |
| PRINT | 2002 | | | | | | |
| ILLUMB | MISNP | 0.6025000E 04 | 0.1621528E-01 | 000000000000 | 000000000000 | 000000000000 | 000000000000 |
| | 000000000000 | 000000000000 | URBRG | 0.4338041E-37 | | | |
| ORBITS | 0.1000000E 02 | | | | | | |
| TASTOP | 000000000000 | | | | | | |
| DT4 | 0.1000000E 02 | | | | | | |
| LT2L | SPAC | 000000000000 | | | | | |
| SPACFG | LT1L | 000000000000 | | | | | |
| LT2 | OCCULT | 0.1000000E 01 | | | | | |
| SHPRNT | LT1 | 000000000000 | | | | | |
| LT2O | PRNTFG | LT2O | 000000000000 | | | | |
| LT1O | LT10 | 000000000000 | | | | | |
| INTPAC | 0.5000000E 01 | | | | | | |
| INTRVL | 000000000000 | | | | | | |
| XN | 1 | 2 | 3 | 4 | 5 | 6 | |
| EPOCJD | 0.6240000E 04 | 000000000000 | | | | | |
| EPOCM | 0.6240000E 04 | | | | | | |
| EPOCS | 0.6240000E 04 | | | | | | |
| EPOCT | 0.6240000E 04 | | | | | | |
| NM | 180 | | | | | | |
| NS | 180 | | | | | | |
| N3 | 000000000000 | | | | | | |
| MDEL | 0.5000000E 00 | | | | | | |
| SDEL | 0.5000000E 00 | | | | | | |
| TDEL | 0.5000000E 00 | | | | | | |
| BODYDT | 000000000000 | 0.6700000E 02 | 0.2000000E 01 | 0.1000000E 01 | 000000000000 | 000000000000 | 000000000000 |
| SUNDT | 000000000000 | 0.6700000E 02 | 0.2000000E 01 | 0.1000000E 01 | 000000000000 | 000000000000 | 000000000000 |
| MOONDT | 000000000000 | 0.6700000E 02 | 0.2000000E 01 | 0.1000000E 01 | 000000000000 | 000000000000 | 000000000000 |
| EPOCH | 000000000000 | 0.6700000E 02 | 0.2000000E 01 | 0.1000000E 01 | 000000000000 | 000000000000 | 000000000000 |
| CRASUT | 000000000000 | 000000000000 | 000000000000 | 000000000000 | 000000000000 | 000000000000 | 000000000000 |
| MNCRAT | 000000000000 | 000000000000 | 000000000000 | 000000000000 | 000000000000 | 000000000000 | 000000000000 |
| MNSUNT | 000000000000 | 000000000000 | 000000000000 | 000000000000 | 000000000000 | 000000000000 | 000000000000 |
| MNEART | 000000000000 | 000000000000 | 000000000000 | 000000000000 | 000000000000 | 000000000000 | 000000000000 |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| EARSUT | 0.0000000000E 00 | 0.0000000000E 00 | 0.0000000000E 00 | 0.0000000000E 00 | 0.0000000000E 00 | 0.0000000000E 00 | 0.0000000000E 00 |
| JIGGLT | 0.0000000000E 00 | 0.0000000000E 00 | 0.0000000000E 00 | 0.0000000000E 00 | 0.0000000000E 00 | 0.0000000000E 00 | 0.0000000000E 00 |



| | | | | | | | |
|---|---|---|---|---|---|---|---|
| TRANST | 0.0000000000E 00 | 0.6600000E 02 | 0.7000000E 01 | 0.2300000E 02 | 0.0000000000E 00 | 0.4600000E 02 | 0.1810000E 02 |
| LNINJT | 0.0000000000E 00 | 0.6600000E 02 | 0.7000000E 01 | 0.1600000E 02 | 0.1400000E 02 | 0.1100000E 02 | 0.1680000E 02 |
| ECNTST | 0.0000000000E 00 | 0.6600000E 02 | 0.7000000E 01 | 0.1600000E 02 | 0.1400000E 02 | 0.2000000E 02 | 0.4930000E 02 |
| ECNTGT | 0.0000000000E 00 | 0.6600000E 02 | 0.7000000E 01 | 0.1600000E 02 | 0.1400000E 02 | 0.2000000E 02 | 0.4930000E 02 |
| PERIAT | 0.0000000000E 00 | 0.0000000000E 00 | 0.0000000000E 00 | 0.0000000000E 00 | 0.0000000000E 00 | 0.0000000000E 00 | 0.0000000000E 00 |
| MIDC2T | 0.0000000000E 00 | 0.0000000000E 00 | 0.0000000000E 00 | 0.0000000000E 00 | 0.0000000000E 00 | 0.0000000000E 00 | 0.0000000000E 00 |
| MIDC1T | 0.0000000000E 00 | 0.0000000000E 00 | 0.0000000000E 00 | 0.0000000000E 00 | 0.0000000000E 00 | 0.0000000000E 00 | 0.0000000000E 00 |
| AGINAT | 0.0000000000E 00 | 0.6600000E 02 | 0.7000000E 01 | 0.1200000E 02 | 0.2000000E 02 | 0.1500000E 02 | 0.3510000E 02 |
| LAUNCT | 0.0000000000E 00 | 0.6700000E 02 | 0.2000000E 01 | 0.5000000E 01 | 0.1000000E 01 | 0.1700000E 02 | 0.1120000E 01 |
| SNAPFT | 0.0000000000E 00 | 0.0000000000E 00 | 0.0000000000E 00 | 0.0000000000E 00 | 0.0000000000E 00 | 0.0000000000E 00 | 0.0000000000E 00 |
| SNAPOT | 0.0000000000E 00 | 0.0000000000E 00 | 0.0000000000E 00 | 0.0000000000E 00 | 0.0000000000E 00 | 0.0000000000E 00 | 0.0000000000E 00 |
| SNAP9T | 0.0000000000E 00 | 0.0000000000E 00 | 0.0000000000E 00 | 0.0000000000E 00 | 0.0000000000E 00 | 0.0000000000E 00 | 0.0000000000E 00 |
| SNAP8T | 0.0000000000E 00 | 0.0000000000E 00 | 0.0000000000E 00 | 0.0000000000E 00 | 0.0000000000E 00 | 0.0000000000E 00 | 0.0000000000E 00 |
| SNAP7T | 0.0000000000E 00 | 0.0000000000E 00 | 0.0000000000E 00 | 0.0000000000E 00 | 0.0000000000E 00 | 0.0000000000E 00 | 0.0000000000E 00 |
| SNAP6T | 0.0000000000E 00 | 0.0000000000E 00 | 0.0000000000E 00 | 0.0000000000E 00 | 0.0000000000E 00 | 0.0000000000E 00 | 0.0000000000E 00 |
| SNAP5T | 0.0000000000E 00 | 0.0000000000E 00 | 0.0000000000E 00 | 0.0000000000E 00 | 0.0000000000E 00 | 0.0000000000E 00 | 0.0000000000E 00 |
| SNAP4T | 0.0000000000E 00 | 0.0000000000E 00 | 0.0000000000E 00 | 0.0000000000E 00 | 0.0000000000E 00 | 0.0000000000E 00 | 0.0000000000E 00 |
| SNAP3T | 0.0000000000E 00 | 0.0000000000E 00 | 0.0000000000E 00 | 0.0000000000E 00 | 0.0000000000E 00 | 0.0000000000E 00 | 0.0000000000E 00 |
| SNAP2T | 0.0000000000E 00 | 0.0000000000E 00 | 0.0000000000E 00 | 0.0000000000E 00 | 0.0000000000E 00 | 0.0000000000E 00 | 0.0000000000E 00 |
| SNAP1T | 0.0000000000E 00 | 0.0000000000E 00 | 0.0000000000E 00 | 0.0000000000E 00 | 0.0000000000E 00 | 0.0000000000E 00 | 0.0000000000E 00 |

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|---|---|---|---|---|---|---|---|
| FPFINT | 000000000000 | 000000000000 | 000000000000 | 000000000000 | 000000000000 | 000000000000 | 000000000000 |
| FPINT | 000000000000 | 000000000000 | 000000000000 | 000000000000 | 000000000000 | 000000000000 | 000000000000 |
| ILLMXT | 0.1000000E 01 | 0.6600000E 02 | 0.7000000E 01 | 0.1000000E 01 | 0.2000000E 01 | 000000000000 | 000000000000 |
| ILLMNT | 0.1000000E 01 | 0.6600000E 02 | 0.7000000E 01 | 0.1000000E 01 | 000000000000 | 000000000000 | 000000000000 |
| ILLUMT | 000000000000 | 0.6600000E 02 | 0.7000000E 01 | 0.1000000E 01 | 000000000000 | 0.2300000E 02 | 0.2100000E 02 |



| | |
|---|---|
| WTSC | 0.8456000E 03 |
| RA | 000000000000 |
| MAP | 0.1000000E 01 |
| JD | 000000000000 |
| Q01 | -0.4600000E 02 |
| Q03 | -0.3600000E 02 |
| Q05 | -0.3600000E 02 |
| Q07 | -0.4600000E 02 |
| Q08 | 0.4000000E 01 |
| Q06 | 0.4000000E 01 |
| Q02 | -0.8000000E 01 |
| Q04 | -0.8000000E 01 |
| Q09 | 000000000000 |
| Q10 | -0.9000000E 02 |
| Q11 | 000000000000 |
| Q12 | 000000000000 |
| Q13 | 0.1000000E 01 |
| Q14 | 0.1200000E 02 |
| Q15 | 000000000000 |
| Q16 | 0.3487700E 03 |
| Q17 | 0.5000000E-01 |
| Q18 | 0.5000000E-02 |
| Q19 | 0.5000000E 02 |
| Q20 | 0.5000000E 01 |
| Q21 | 0.3600000E 04 |
| Q22 | 0.6000000E 03 |
| Q23 | 0.5000000E 00 |
| Q24 | 0.5000000E-01 |
| Q25 | 0.1500000E-00 |
| Q26 | 0.3785000E 04 |
| Q27 | 0.3391000E 04 |
| Q28 | 0.3588000E 04 |
| Q29 | 000000000000 |
| Q30 | 0.1784000E 04 |
| PERINE | 0.1938000E 04 |

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C32     0.5000000E 02
C33      000000000000
C34    -0.2000000E 02
C35     0.2000000E 02
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C37    -0.3600000E 02
C38    -0.2500000E 01
C39     0.1000000E 01
C40     0.1764387E 04 0.1682381E 04-0.6512279E 03 0.4702671E-00-0.2803608E 01-0.7251035E 00 0.1682381E 04
        0.4448611E 04-0.2067886E 04-0.1253268E 01-0.5063785E 01-0.7439740E 00-0.6512279E 03-0.2067886E 04
        0.9797487E 03 0.6877402E 00 0.2257446E 01 0.3080861E-00 0.4702671E-00-0.1253268E 01 0.6877402E 00
        0.1150278E-02 0.6735988E-03-0.1815485E-03-0.2803608E 01-0.5063785E 01 0.2257446E 01 0.6735988E-03
        0.6477456E-02 0.1224662E-02-0.7251035E 00-0.7439740E 00 0.3080861E-00-0.1815485E-03 0.1224662E-02
        0.3583510E-03
```

EPHEMERIS FOR FEBRUARY, MARCH, AND APRIL OF 1967 PAGE 4

```
C41     000000000000  000000000000  000000000000  000000000000  000000000000  000000000000  000000000000
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        000000000000  000000000000  000000000000  000000000000  000000000000  000000000000  000000000000
        000000000000  000000000000  000000000000  000000000000  000000000000  000000000000  000000000000
        000000000000  000000000000  000000000000  000000000000  000000000000  000000000000  000000000000
        000000000000
C42    -0.3039619E 04-0.1581258E 03 0.3395776E 03-0.8065893E 00-0.5252800E 00 0.1174629E-00-0.1879288E 04
       -0.8180661E 02 0.1752168E 03-0.4932661E-00-0.3284389E-00 0.8272191E-01-0.2387885E 03-0.4817860E 02
       -0.7104948E 01-0.6756742E-01-0.3608684E-01 0.1764383E-01 0.1589148E 07 0.1110010E 06-0.1778583E 06
        0.4269533E 03 0.2697662E 03-0.6053091E 02-0.3268817E 07-0.1475441E 06 0.3421554E 06-0.8616160E 03
       -0.5693430E 03 0.1333227E 03 0.2151854E 07 0.1148550E 06-0.2260630E 06 0.5705312E 03 0.3717408E 03
       -0.8707300E 02
C43     0.2938272E 01 0.1503903E 01-0.5841982E 01-0.3353001E-04 0.4252101E-05 0.6904453E-04 0.1503903E 01
        0.1612210E 02-0.5158553E 01-0.1821442E-03 0.1804793E-03 0.3612199E-03-0.5841982E 01-0.5158553E 01
        0.5446837E 02 0.6758593E-05-0.2847690E-03 0.5056778E-03-0.3353001E-04-0.1821442E-03 0.6758593E-05
        0.2929749E-08-0.1890049E-08-0.7166200E-08 0.4252101E-05 0.1804793E-03-0.2847690E-03-0.1890049E-08
        0.4022652E-08 0.8396570E-09 0.6904453E-04 0.3612199E-03 0.5056778E-03-0.7166200E-08 0.8396570E-09
        0.2374991E-07
C44     0.1213951E-01-0.3573253E-01 0.5341741E-01-0.8259512E-07 0.3574817E-06-0.5088456E-06-0.3573253E-01
        0.1157219E-00-0.1844922E-00-0.4368760E-05 0.2041018E-04-0.3039608E-04 0.5341741E-01-0.1844922E-00
        0.3129708E-00 0.1385721E-04-0.6422376E-04 0.9446464E-04-0.8259512E-07-0.4368760E-05 0.1385721E-04
        0.5497351E-08-0.2174594E-07 0.3239337E-07 0.3574817E-06-0.4000000E-08-0.6422376E-04-0.2174594E-07
        0.8854448E-07-0.1314397E-06-0.5088456E-06-0.3039608E-04 0.9446464E-04 0.3239337E-07-0.1314397E-06
        0.1953347E-06
C45     0.2010583E 01 0.4805080E-00 0.3761391E-00 0.9235494E-05 0.4585880E-05 0.3053981E-05 0.4503695E-00
        0.6314692E 00 0.1099546E-00 0.4080779E-05-0.2516285E-05 0.9338634E-06 0.3822988E-00 0.1192669E-00
        0.5625620E 00 0.3226071E-05 0.1109925E-05-0.3199328E-05 0.2213884E 06 0.2084406E 05 0.1359684E 05
```

```
        0.1482709E 01 0.2834424E-00 0.1610405E-00 0.2022024E 05 0.1693228E 06 0.4584490E 04 0.2719472E-00
        0.8417896E 00 0.5809341E-01 0.1372243E 05 0.4761385E 04 0.1653108E 06 0.1640796E-00 0.6169074E-01
        0.7733928E 00
 Q46     000000000000  000000000000  000000000000
 Q47     000000000000  000000000000  000000000000  000000000000  000000000000  000000000000
 Q48    0.4000000E 01  000000000000  000000000000  000000000000  000000000000  000000000000  000000000000
        0.4000000E 01  000000000000  000000000000  000000000000  000000000000  000000000000  000000000000
        0.4000000E 01  000000000000  000000000000  000000000000  000000000000  000000000000  000000000000
        0.2800000E-08  000000000000  000000000000  000000000000  000000000000  000000000000  000000000000
        0.2500000E-08  000000000000  000000000000  000000000000  000000000000  000000000000  000000000000
        0.2500000E-08
 Q49    0.1032819E 01 0.2476704E-01 0.9715819E-02 0.9093060E-06 0.6934851E-06 0.2615593E-06 0.2455488E-01
        0.9884017E 00 0.4297850E-02 0.6865743E-06-0.3093778E-06 0.1169867E-06 0.9493056E-02 0.4235064E-02
        0.9791934E 00 0.2561167E-06 0.1157088E-06-0.5739392E-06 0.7051142E 05 0.5376530E 03 0.2217909E 03
        0.1030193E 01 0.2334753E-01 0.8482045E-02 0.5340349E 03 0.6951643E 05 0.1052874E 03 0.2346692E-01
        0.9900053E 00 0.3897352E-02 0.1982731E 03 0.8176957E 02 0.6932992E 05 0.8502058E-02 0.3899077E-02
        0.9806572E 00  000000000000  000000000000  000000000000
 Q51     000000000000  000000000000  000000000000  000000000000  000000000000  000000000000
 Q52     000000000000  000000000000  000000000000  000000000000  000000000000  000000000000  000000000000
        000000000000  000000000000  000000000000  000000000000-0.9197347E 03  000000000000  000000000000
        000000000000  000000000000  000000000000  000000000000  000000000000  000000000000  000000000000
        000000000000  000000000000  000000000000  000000000000  000000000000 0.3172777E 03  000000000000
        000000000000  000000000000  000000000000  000000000000 0.9436200E 00  000000000000-0.3044530E-00
```





```
        0.9117997E 00 0.2755533E-00  000000000000  000000000000  000000000000  000000000000  000000000000
         000000000000  000000000000  000000000000  000000000000  000000000000  000000000000  000000000000
         000000000000  000000000000  000000000000  000000000000
 Q53     000000000000  000000000000  000000000000  000000000000  000000000000  000000000000
 Q54    0.3887589E-02-0.1568510E-01 0.2088316E-01 0.2100133E-05-0.1058175E-04 0.1727558E-04-0.1568510E-01
        0.6330253E-01-0.8428157E-01-0.8444862E-05 0.4256740E-04-0.6951267E-04 0.2088316E-01-0.8428157E-01
        0.1122574E-00 0.1121200E-04-0.5651367E-04 0.9226720E-04 0.2100133E-05-0.8444862E-05 0.1121200E-04
        0.1252449E-08-0.6270401E-08 0.1019388E-07-0.1058175E-04 0.4256740E-04-0.5651367E-04-0.6270401E-08
        0.3141262E-07-0.5109331E-07 0.1727558E-04-0.6951267E-04 0.9226720E-04 0.1019388E-07-0.5109331E-07
        0.8314725E-07
 Q55     000000000000  000000000000  000000000000  000000000000  000000000000  000000000000
 Q56     000000000000  000000000000  000000000000  000000000000  000000000000  000000000000
 Q57     000000000000
 Q58     000000000000
 Q59    -0.5053790E 00-0.6036800E 00 0.3941500E-01
 Q60     000000000000  000000000000  000000000000
 Q61     000000000000  000000000000  000000000000  000000000000  000000000000  000000000000
 Q62     000000000000  000000000000  000000000000  000000000000  000000000000  000000000000
```

```
Q63      0.0000000000E 00  0.0000000000E 00  0.0000000000E 00  0.0000000000E 00  0.0000000000E 00  0.0000000000E 00
Q64      0.0000000000E 00
Q65      0.0000000000E 00
Q66     -0.2260000E-01 0.1342400E-01 0.6420000E-03
Q67      0.0000000000E 00  0.0000000000E 00  0.0000000000E 00  0.0000000000E 00  0.0000000000E 00  0.0000000000E 00
Q68      0.0000000000E 00  0.0000000000E 00  0.0000000000E 00  0.0000000000E 00  0.0000000000E 00  0.0000000000E 00
Q69      0.0000000000E 00
Q70      0.0000000000E 00
EARSUN   0.0000000000E 00  0.0000000000E 00  0.0000000000E 00  0.0000000000E 00  0.0000000000E 00  0.0000000000E 00  0.0000000000E 00
         0.0000000000E 00  0.0000000000E 00  0.0000000000E 00
ERASUN   0.0000000000E 00  0.0000000000E 00  0.0000000000E 00  0.0000000000E 00  0.0000000000E 00  0.0000000000E 00  0.0000000000E 00
         0.0000000000E 00  0.0000000000E 00  0.0000000000E 00
MNERA    0.0000000000E 00  0.0000000000E 00  0.0000000000E 00  0.0000000000E 00  0.0000000000E 00  0.0000000000E 00  0.0000000000E 00
         0.0000000000E 00  0.0000000000E 00  0.0000000000E 00
MNSUN    0.0000000000E 00  0.0000000000E 00  0.0000000000E 00  0.0000000000E 00  0.0000000000E 00  0.0000000000E 00  0.0000000000E 00
         0.0000000000E 00  0.0000000000E 00  0.0000000000E 00
MNEAR    0.0000000000E 00  0.0000000000E 00  0.0000000000E 00  0.0000000000E 00  0.0000000000E 00  0.0000000000E 00  0.0000000000E 00
         0.0000000000E 00  0.0000000000E 00  0.0000000000E 00
UNITSM   0.0000000000E 00  0.0000000000E 00  0.0000000000E 00
IP1     -0.1000000E 01
IP2      0.0000000000E 00
IP5      0.0000000000E 00
IP3                -1
SRCHON  0.7000000E 01
SRCHTA  0.3600000E 03
TAMIN   0.1900000E 03
TAMAX   0.2050000E 03
DTA     0.5000000E 01
CFM     0.5000000E 00 0.1000000E 01
DFC     0.5000000E 00 1.0000000E-01 1.0000000E-01 1.0000000E-01
DI      0.5000000E 00 0.5000000E 00 1.0000000E-01 1.0000000E-01
EC       0.0000000000E 00  0.0000000000E 00  0.0000000000E 00  0.0000000000E 00  0.0000000000E 00  0.0000000000E 00 0.1792040E 04
```



```
         0.1204000E 02-0.1480000E 01 0.1792040E 04 0.1204000E 02-0.1480000E 01
AHYP    -0.5505993E 04 0.1411421E 01 0.6280302E 02 0.2566082E 02 0.3355385E 02 0.3276928E 03
ALO      0.2788000E 04 0.2869440E-00-0.1676351E 02 0.2869667E 02 0.1433550E 02 0.1543177E 04
DEC      0.1000000E 01 0.1000000E 01 0.3000000E 02 0.1000000E 01 0.1000000E 01 0.3000000E 02 1.0000000E-01
         1.0000000E-01 1.0000000E-01 1.0000000E-01 1.0000000E-01 1.0000000E-01
AEND     602233636060                602233516060
                                                                  TCA                                    RP
                                 INC                                        TCA
                                                                                          RP
                      INC                                 LATIT-0.9320143E 10          RP                      INC
                                 LATIT-0.9320143E 10
```

| ISTN | 28 | 11 | 20 | 28 | 11 | 20 | |
|---|---|---|---|---|---|---|---|
| ISMN | 51 | 52 | 12 | 28 | 11 | 12 | |
| BIG | 0.000000000000 | 0.000000000000 | 0.000000000000 | 0.000000000000 | 0.000000000000 | 0.000000000000 | 0.000000000000 |
|

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          0000000000000  0000000000000  0000000000000  0000000000000  0000000000000  0000000000000  0000000000000
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          0000000000000  0000000000000  0000000000000  0000000000000  0000000000000  0000000000000  0000000000000
          0000000000000  0000000000000  0000000000000  0000000000000  0000000000000  0000000000000  0000000000000
          0000000000000  0000000000000  0000000000000  0000000000000
TINY      0000000000000  0000000000000  0000000000000  0000000000000  0000000000000  0000000000000  0000000000000
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          0000000000000  0000000000000  0000000000000  0000000000000  0000000000000  0000000000000  0000000000000
          0000000000000  0000000000000  0000000000000  0000000000000  0000000000000  0000000000000  0000000000000
          0000000000000  0000000000000  0000000000000  0000000000000  0000000000000  0000000000000  0000000000000
FOTO   0.1703445E 03-0.3089000E 02 0.3089000E 02-0.3232000E 02 0.3232000E 02 0000000000000  0000000000000
          0000000000000  0000000000000  0000000000000
ARBANO 0.3560000E 03 0.3580000E 03 0.2000000E 01 0.4000000E 01 0.6000000E 01
IOTPIX    0000000000000
NUM    0.5000000E 01
ORFIN  0.2200000E 02
ORNUM     0000000000000
ORINT  0.5000000E 01
STON      0000000000000  0000000000000  0000000000000
ARG       0000000000000  0000000000000  0000000000000  0000000000000  0000000000000  0000000000000  0000000000000
          0000000000000  0000000000000  0000000000000  0000000000000  0000000000000  0000000000000  0000000000000
          0000000000000  0000000000000  0000000000000  0000000000000  0000000000000  0000000000000  0000000000000
          0000000000000  0000000000000  0000000000000  0000000000000  0000000000000  0000000000000  0000000000000
          0000000000000  0000000000000
LAX       0000000000000  0000000000000  0000000000000
DOR    0.1000000E 01
DTIN      0000000000000
```

```
IUP      0000000000000


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ITH                 1
I1       0000000000000
I2       0000000000000
KCA      0000000000000
K1       0000000000000
K2       0000000000000
K3       0000000000000
KA1                 3
KA2                 1
KA3      0000000000000
SLO      0000000000000
SLA      0000000000000
TPP      0000000000000
VGACC   0.8146000E 03
PDMAX   0.1991000E 04
PDMIN   0.1775000E 04
LTAMIN-0.1000000E 02
LTAMAX 0.1000000E 02
LNAMIN-0.6000000E 02
LNAMAX 0.6000000E 02
DDPCOV   0000000000000  0000000000000  0000000000000  0000000000000  0000000000000  0000000000000  0000000000000
         0000000000000  0000000000000  0000000000000  0000000000000  0000000000000  0000000000000  0000000000000
         0000000000000  0000000000000  0000000000000  0000000000000  0000000000000  0000000000000  0000000000000
         0000000000000  0000000000000  0000000000000  0000000000000  0000000000000  0000000000000  0000000000000
         0000000000000  0000000000000  0000000000000  0000000000000  0000000000000  0000000000000  0000000000000
         0000000000000
DDPSV  -0.1000000E 01  0000000000000  0000000000000  0000000000000  0000000000000  0000000000000
SNAP1    0000000000000  0000000000000  0000000000000  0000000000000  0000000000000  0000000000000  0000000000000
         0000000000000  0000000000000  0000000000000
SNAP2    0000000000000  0000000000000  0000000000000  0000000000000  0000000000000  0000000000000  0000000000000
         0000000000000  0000000000000  0000000000000
SNAP3    0000000000000  0000000000000  0000000000000  0000000000000  0000000000000  0000000000000  0000000000000
         0000000000000  0000000000000  0000000000000
SNAP4    0000000000000  0000000000000  0000000000000  0000000000000  0000000000000  0000000000000  0000000000000
         0000000000000  0000000000000  0000000000000
SNAP5    0000000000000  0000000000000  0000000000000  0000000000000  0000000000000  0000000000000  0000000000000
         0000000000000  0000000000000  0000000000000
SNAP6    0000000000000  0000000000000  0000000000000  0000000000000  0000000000000  0000000000000  0000000000000
         0000000000000  0000000000000  0000000000000
SNAP7    0000000000000  0000000000000  0000000000000  0000000000000  0000000000000  0000000000000  0000000000000
         0000000000000  0000000000000  0000000000000
```

```
SNAP8   0.0000000000E 00  0.0000000000E 00  0.0000000000E 00  0.0000000000E 00  0.0000000000E 00  0.0000000000E 00  0.0000000000E 00
        0.0000000000E 00  0.0000000000E 00  0.0000000000E 00
SNAP9   0.0000000000E 00  0.0000000000E 00  0.0000000000E 00  0.0000000000E 00  0.0000000000E 00  0.0000000000E 00  0.0000000000E 00
        0.0000000000E 00  0.0000000000E 00  0.0000000000E 00
SNAP10  0.0000000000E 00  0.0000000000E 00  0.0000000000E 00  0.0000000000E 00  0.0000000000E 00  0.0000000000E 00  0.0000000000E 00
        0.0000000000E 00  0.0000000000E 00  0.0000000000E 00
SNAPFL  0.0000000000E 00  0.0000000000E 00  0.0000000000E 00  0.0000000000E 00  0.0000000000E 00  0.0000000000E 00  0.0000000000E 00
        0.0000000000E 00  0.0000000000E 00  0.0000000000E 00
FPFIN   0.0000000000E 00  0.0000000000E 00  0.0000000000E 00  0.0000000000E 00  0.0000000000E 00  0.0000000000E 00  0.0000000000E 00
```

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```
        0.0000000000E 00  0.0000000000E 00  0.0000000000E 00
FPIN    0.0000000000E 00  0.0000000000E 00  0.0000000000E 00  0.0000000000E 00  0.0000000000E 00  0.0000000000E 00  0.0000000000E 00
        0.0000000000E 00  0.0000000000E 00  0.0000000000E 00
LAUNCH  0.6244000E 04  0.5348518E-01  0.0000000000E 00  0.0000000000E 00  0.0000000000E 00  0.0000000000E 00  0.0000000000E 00
        0.0000000000E 00  0.0000372400  0.4670864E-37
AGINJ   0.6036000E 04  0.8441562E 00  0.1024360E 04-0.5701712E 04-0.3093514E 04  0.1041825E 02  0.2604063E 01
       -0.1992928E 01  0.0005666173  0.4336060E-37
MIDC01          MIDC01-0.1829500E 05  0.0000000000E 00  0.0000000000E 00  0.0000000000E 00  0.0000000000E 00  0.0000000000E 00
        0.0000000000E 00  0.0000000000E 00  0.0000000000E 00  0.0000000000E 00
MIDC02          MIDC02-0.1829500E 05  0.0000000000E 00  0.0000000000E 00  0.0000000000E 00  0.0000000000E 00  0.0000000000E 00
        0.0000000000E 00  0.0000000000E 00  0.0000000000E 00  0.0000000000E 00
ECNTRS  0.6040000E 04  0.5977928E 00  0.0000000000E 00  0.0000000000E 00  0.0000000000E 00  0.0000000000E 00  0.0000000000E 00
        0.0000000000E 00          007UDC  0.4338094E-37
ECNTRG  0.6040000E 04  0.5977928E 00  0.2368480E 04-0.1111470E 04-0.2100000E-00  0.6830700E 00  0.1887500E 01
        0.4170800E-00          007UDC  0.4338094E-37
PERIAP  0.0000000000E 00  0.0000000000E 00  0.0000000000E 00  0.0000000000E 00  0.0000000000E 00  0.0000000000E 00  0.0000000000E 00
        0.0000000000E 00  0.0000000000E 00  0.0000000000E 00
LININJ  0.6040000E 04  0.5911667E 00  0.1784300E 04-0.2109730E 04-0.2303900E 03  0.6825000E 00  0.1050000E 01
        0.4403000E-00  0.0004205177  0.4338094E-37
TRANSF  0.6047000E 04  0.3215393E-01-0.1702750E 04-0.2938230E 04-0.1158370E 04  0.8178000E 00-0.4877000E-00
        0.2970000E-01  0.0021473563  0.4338118E-37
JIGGLE-0.1829500E 05  0.0000000000E 00  0.0000000000E 00  0.0000000000E 00  0.0000000000E 00  0.0000000000E 00
        0.0000000000E 00  0.0000000000E 00  0.0000000000E 00
SPACO           THTHS  0.2036000E 02
THTHF   0.5170000E 01
THTLS   0.4424000E 02
THTLF   0.3792000E 02
FCLHI   0.6100000E 00
FCLLO   0.8000000E-01
BIAS    0.0000000000E 00
DLALF   0.8570000E-01
DLTIM   0.2300000E 01
```

```
G       0.2170000E-01
SIGMC   0.6920000E-02 0.3900000E-03 0.4200000E-04  000000000000 0.3000000E-02 0.2090000E-03 0.3320000E-03
        0.1100000E-02 0.2160000E-02
SIGIJ    000000000000 0.2900000E-03 0.4200000E-04  000000000000 0.3000000E-02 0.2090000E-03 0.3320000E-03
        0.1100000E-02 0.2160000E-02
SIGTR   0.6920000E-02 0.2400000E-03 0.4200000E-04  000000000000 0.3000000E-02 0.2090000E-03 0.3320000E-03
        0.1100000E-02 0.2160000E-02
PHIH    0.9000000E-01
THTH    0.2002000E 03
PHIC    0.9002000E 02
THTC     000000000000
PHIF    0.1992000E 02
THTF    0.9012000E 02
PHIK    0.1099200E 03
THTK    0.9005000E 02
GB      0.1797500E 03
WEIGHT  0.9000000E 03 0.8500000E 03 0.8000000E 03 0.7500000E 03 0.7000000E 03 0.6500000E 03 0.6000000E 03
        0.5500000E 03 0.5000000E 03  000000000000
```



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```
CG1     0.2083000E 03 0.2100000E 03 0.2119000E 03 0.2138000E 03 0.2157000E 03 0.2177000E 03 0.2199000E 03
        0.2213000E 03 0.2249000E 03  000000000000
CG2     0.5100000E-01 0.5700000E-01 0.6400000E-01 0.6900000E-01 0.7500000E-01 0.8000000E-01 0.8500000E-01
        0.9200000E-01 0.9800000E-01  000000000000
CG3     0.2200000E-01 0.2600000E-01 0.3100000E-01 0.3500000E-01 0.3900000E-01 0.4300000E-01 0.4600000E-01
        0.5100000E-01 0.5500000E-01  000000000000
HGD9     000000000000 0.1530000E-00 0.9880000E 00
HGDZ   -0.9970000E 00-0.8000000E-01  000000000000
TIRU    0.1000000E 01  000000000000  000000000000  000000000000 0.1000000E 01  000000000000  000000000000
         000000000000 0.1000000E 01
GMBETA 0.1800000E-00
AREA    0.9930000E 01
ISP     0.2700000E 03
MDOT   -0.1151000E-01
MZERO   0.2628000E 02
VMIN    0.2500000E 01
VBUD    0.9780000E 03
ABAR    0.1300000E-02
GOLDST          TRAKCO 0.1200000E 02 0.1200000E 02 0.3511738E 02 0.2431946E 03 0.6371878E 04
WOOMER 0.4100000E 02 0.4000000E 01-0.3121229E 02 0.1368876E 03 0.6372618E 04
MADRID 0.6200000E 02 0.1000000E 01 0.4026370E 02 0.3556324E 03 0.6370007E 04
JOHANN 0.5100000E 02 0.5000000E 01  000000000000  000000000000  000000000000
OMEGA3 0.1000000E 07
OMEGA4 0.1042534E 03
```

```
BOMED    0000000000000
OMED     0000000000000
GL              PHYSCU 0.3986013E 06
GS       0.1327154E 12
GM       0.4902580E 04
GV       0.3248534E 06
GMARS    0.4297780E 05
GJUP     0.1267106E 09
GMER     0.2168553E 05
GSAT     0.3791870E 08
GU       0.5803292E 07
GNEP     0.7026072E 07
GPLUT    0.3317886E 06
RESCL    0.6378149E 04
RE       0.6378165E 04
OMEGE    0.7292115E-04
FE       0.3352300E-02
J2       0.1082300E-02
J3      -0.2300000E-05
J4      -0.1800000E-05
AUSCL    0.1495990E 09
C        0.2997925E 06
ETUT     0.3740000E 02
RMOON    0.1738090E 04
OMEGM    0.2661699E-05
DAY      0.8640000E 05
```





```
SOLAR    0.1370000E 04
J20      0.2070000E-03
J30     -0.4460000E-04
J40     -0.2090000E-04
C21      0.8800000E-05
C22      0.2760000E-04
C31      0.4350000E-04
C32     -0.5200000E-05
C33      0.9100000E-06
C41     -0.5100000E-05
C42      0.2800000E-05
C43     -0.4700000E-06
C44      0.9400000E-07
S21     -0.4110000E-04
```

```
S22    -0.5800000E-05
S31     0.1700000E-04
S32     0.1870000E-05
S33    -0.3300000E-05
S41    -0.1020000E-04
S42    -0.8300000E-05
S43    -0.2600000E-05
S44     0.1700000E-06
ALPC    0.9571030E 02
DELC   -0.5266756E 02
GESCL   0.3986013E 06
GMSCL   0.4902754E 04
K       0.3791870E 08
J       0.1623450E-02
H      -0.5750000E-05
D       0.7875000E-05
SOLARC 0.1023000E 09
JD50    0.2433282E 07
MATHCO         EXP     0.2718282E 01
PI      0.3141593E 01
DEGRA   0.5729578E 02
FOOT    0.3048000E-03
NAUMI   0.1852000E 01
STAMI   0.1609344E 01
LBKG    0.4535924E-00
SLKG    0.1459390E 02
ARCTM   0.1500000E 02
```

EPHEMERIS FOR FEBRUARY, MARCH, AND APRIL OF 1967



X3

Y3

Z3

XOUT3

YOUT3

ZOUT3

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          0.1992618E-00 0.2980027E-00 0.3906470E-00 0.4763487E-00 0.5544182E 00
ZDOTM    -0.4575020E-00-0.4319983E-00-0.4005921E-00-0.3639212E-00-0.3226734E-00-0.2775695E-00-0.2293488E-00
         -0.1787568E-00-0.1265351E-00-0.7341207E-01-0.2009505E-01 0.3273644E-01 0.8443718E-01 0.1344019E-00
          0.1820703E-00 0.2269312E-00 0.2685257E-00 0.3064495E-00 0.3403537E-00 0.3699447E-00 0.3949830E-00
          0.4152804E-00 0.4306974E-00 0.4411385E-00 0.4465488E-00 0.4469097E-00 0.4422348E-00 0.4325669E-00
          0.4179754E-00 0.3985550E-00 0.3744257E-00 0.3457339E-00 0.3126557E-00 0.2754012E-00 0.2342209E-00
          0.1894134E-00 0.1413345E-00 0.9040699E-01 0.3713052E-01-0.1790957E-01-0.7403562E-01-0.1304751E-00
         -0.1863637E-00-0.2407563E-00-0.2926460E-00-0.3409940E-00-0.3847668E-00-0.4229811E-00-0.4547512E-00
         -0.4793349E-00-0.4961726E-00-0.5049152E 00-0.5054373E 00-0.4978357E-00-0.4824131E-00-0.4596511E-00
         -0.4301761E-00-0.3947213E-00-0.3540910E-00-0.3091270E-00-0.2606816E-00-0.2095955E-00-0.1566823E-00
         -0.1027179E-00-0.4843394E-01 0.5485506E-02 0.5840505E-01 0.1097379E-00 0.1589451E-00 0.2055343E-00
          0.2490592E-00 0.2891184E-00 0.3253556E-00 0.3574587E-00 0.3851604E-00 0.4082377E-00 0.4265117E-00
          0.4398475E-00 0.4481529E-00 0.4513772E-00 0.4495099E-00 0.4425789E-00 0.4306482E-00 0.4138165E-00
          0.3922155E-00 0.3660086E-00 0.3353905E-00 0.3005878E-00 0.2618598E-00 0.2195020E-00 0.1738491E-00
          0.1252606E-00 0.7422655E-01 0.2117418E-01-0.3332497E-01-0.8864878E-01-0.1440998E-00-0.1989036E-00
         -0.2522113E-00-0.3031083E-00-0.3506317E-00-0.3937945E-00-0.4316211E-00-0.4631886E-00-0.4876750E-00
         -0.5044066E 00-0.5129015E 00-0.5129037E 00-0.5044010E 00-0.4876266E-00-0.4630422E-00-0.4313067E-00
```

-0.3932336E-00-0.3497434E-00-0.3016163E-00-0.2504492E-00-0.1966204E-00-0.1412631E-00-0.6524710E-01
-0.2936725E-01 0.2565061E-01 0.7916954E-01 0.1306157E-00 0.1794848E-00 0.2253327E-00 0.2677692E-00
0.3064529E-00 0.3410859E-00 0.3714108E-00 0.3972073E-00 0.4182915E-00 0.4345147E-00 0.4457634E-00
0.4519602E-00 0.4530639E-00 0.4490710E-00 0.4401160E-00 0.4259725E-00 0.4070533E-00 0.3834137E-00
0.3552369E-00 0.3227616E-00 0.2862559E-00 0.2460285E-00 0.2024273E-00 0.1558490E-00 0.1066955E-00



0.5546473E-01 0.2663661E-02-0.5114492E-01-0.1053469E-00-0.1592852E-00-0.2122394E-00-0.2634473E-00
-0.3121003E-00-0.3573547E-00-0.3983468E-00-0.4342147E-00-0.4641261E-00-0.4873130E-00-0.5031106E 00
-0.5109978E 00-0.5106346E 00-0.5018935E 00-0.4848776E-00-0.4599251E-00-0.4275967E-00-0.3886469E-00
-0.3439836E-00-0.2946203E-00-0.2416252E-00-0.1860744E-00-0.1290119E-00-0.7141835E-01-0.1419036E-01
0.4187103E-01 0.9606392E-01 0.1477832E-00 0.1965137E-00 0.2418216E-00 000000000000 000000000000
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## 3.2 ORBIT DETERMINATION AND LUNAR HARMONIC SUMMARIES

This section contains a listing of the orbit determination reports. An orbit determination report is supplied for each spacecraft state vector used in the postflight photographic evaluations included in this document.

All of the orbit determinations used satisfy the following conditions: (1) at least four orbits of data were included in each data arc; (2) all perilune data was processed; (3) the camera-on times fall within the arc of tracking data used to generate the spacecraft state vector; (4) the LRC 11/11 harmonics were used as the basic set of harmonics and this set was modified in each case by those harmonics solved for in the orbit determination. The resultant set of harmonics is reflected in the listings of the input data decks of Section 3.3.

The included orbit determination reports summarize:

1) The data-arc epoch;

2) Length of the data arc used;

3) Type and source of tracking data used;

4) Whether any data was excluded from the data arc;

5) The base set of harmonics used and the harmonics solved for;

6) The spacecraft state vector obtained;

7) The standard deviations of the state vector elements.

PHOTO SITE O.D. SUMMARY

| SITE | O.D. IDENT. | EPOCH OF O.D. SOLUTION | | | | DATA ARC LENGTH (HRS) | (MIN) |
|---|---|---|---|---|---|---|---|
| | | DAY | HR. | MIN. | SEC. | | |
| P-1 | 5001 | 045 | 18 | 20 | 00 | 16 | 13 |
| S-1 | 5001 | 045 | 18 | 20 | 00 | 16 | 13 |
| P-2A | 9000 | 046 | 08 | 10 | 00 | — | — |
| P-2B | 5002 | 046 | 15 | 08 | 36 | 13 | — |
| S-2 | 5002 | 046 | 15 | 08 | 36 | 13 | — |
| S-3 | 5002 | 046 | 15 | 08 | 36 | 13 | — |
| S-4 | 5002 | 046 | 15 | 08 | 36 | 13 | — |
| P-3 | 9002 | 047 | 05 | 00 | 00 | 13 | — |
| P-4 | 9002 | 047 | 05 | 00 | 00 | 13 | — |
| P-5A | 9002 | 047 | 05 | 00 | 00 | 13 | — |
| P-5B | 9002 | 047 | 05 | 00 | 00 | 13 | — |
| P-6 | 5003 | 047 | 19 | 00 | 00 | 16 | 27 |
| S-5 | 5003 | 047 | 19 | 00 | 00 | 16 | 27 |
| S-6 | 5003 | 047 | 19 | 00 | 00 | 16 | 27 |
| S-7 | 5003 | 047 | 19 | 00 | 00 | 16 | 27 |
| S-8 | 5003 | 047 | 19 | 00 | 00 | 16 | 27 |
| S-9 | 5003 | 047 | 19 | 00 | 00 | 16 | 27 |
| S-10 | 5356 | 048 | 16 | 15 | 00 | 16 | 20 |
| S-11 | 5158A | 048 | 22 | 50 | 00 | 13 | 14 |
| S-13 | 5158A | 048 | 22 | 50 | 00 | 13 | 14 |
| P-7A | 5260 | 049 | 05 | 50 | 00 | 12 | 53 |
| P-7B | 5260 | 049 | 05 | 50 | 00 | 12 | 53 |
| S-14 | 5260 | 049 | 05 | 50 | 00 | 12 | 53 |
| S-15 | 5364 | 049 | 16 | 40 | — | 12 | 55 |
| S-16 | 5364 | 049 | 16 | 40 | — | 12 | 55 |
| S-17 | 5272 | 050 | 06 | 30 | 00 | 13 | — |
| S-18 | 5272 | 050 | 06 | 30 | 00 | 13 | — |
| S-19 | 5272 | 050 | 06 | 30 | 00 | 13 | — |
| S-21 | 5272 | 050 | 06 | 30 | 00 | 13 | — |
| S-21.5 | 5272 | 050 | 06 | 30 | 00 | 13 | — |
| S-22 | 5176 | 050 | 20 | 30 | 00 | 13 | 10 |

PHOTO SITE O.D. SUMMARY

| SITE | O.D. INDENT. | EPOCH OF O.D. SOLUTION | | | | DATA ARC LENGTH (HRS) | (MIN) |
|---|---|---|---|---|---|---|---|
| | | DAY | HR. | MIN. | SEC. | | |
| S-20 | 5176 | 050 | 20 | 30 | 00 | 13 | 10 |
| P-8 | 5278 | 051 | 03 | 20 | 00 | 13 | 00 |
| S-23 | 5278 | 051 | 03 | 20 | 00 | 13 | 00 |
| S-24 | 5278 | 051 | 03 | 20 | 00 | 13 | 00 |
| P-9A | 5380 | 051 | 10 | 45 | 00 | 12 | 52 |
| P-9B | 5380 | 051 | 10 | 45 | 00 | 12 | 52 |
| P-9C | 5380 | 051 | 10 | 45 | 00 | 12 | 52 |
| S-25 | 5382 | 051 | 17 | 45 | 00 | 13 | 02 |
| S-26 | 5382 | 051 | 17 | 45 | 00 | 13 | 02 |
| P-10 | 5286 | 052 | 07 | 00 | 00 | 13 | 50 |
| S-27 | 5286 | 052 | 07 | 00 | 00 | 13 | 50 |
| S-28 | 5286 | 052 | 07 | 00 | 00 | 13 | 50 |
| P-11 | 5192 | 052 | 20 | 10 | 00 | 14 | 30 |
| P-12B.2 | 5192 | 052 | 20 | 10 | 00 | 14 | 30 |
| P-12A | 5192 | 052 | 20 | 10 | 00 | 14 | 30 |
| P-12B.1 | 5294 | 053 | 07 | 00 | 00 | 14 | 0 |
| P-12C | 5294 | 053 | 07 | 00 | 00 | 14 | 0 |
| S-29 | 5294 | 053 | 07 | 00 | 00 | 14 | 0 |
| S-30 | 9004 | 053 | 20 | 40 | 00 | 14 | 42 |
| S-31 | 9004 | 053 | 20 | 40 | 00 | 14 | 42 |

5. [illegible] (LUNAR ELLIPSE)

5.1 C.D. IDENTIFICATION NO. 5001 ITEM NO. _____ TAPE NO. _____

5.2 EPOCH: DAY 045, 13 hr : 20 min : 00 sec (GMT)

5.3 STATE VECTOR (SELC. 1950.0):

| | | | |
|---|---|---|---|
| X | -47.5340 km | $\dot{X}$ | -.84671032 km/sec |
| Y | 3202.0268 km | $\dot{Y}$ | +.15753900 km/sec |
| Z | 1219.5173 km | $\dot{Z}$ | +.41444928 km/sec |

5.4 STANDARD DEVIATIONS:

| | | | | A PRIORI | | | |
|---|---|---|---|---|---|---|---|
| X | 7.73 m | $\dot{X}$ | .014 m/s | X | 0 m | $\dot{X}$ | 0 m/sec |
| Y | 103.2 m | $\dot{Y}$ | .051 m/s | Y | \| m | $\dot{Y}$ | \| m/sec |
| Z | 239.2 m | $\dot{Z}$ | .049 m/s | Z | \| m | $\dot{Z}$ | \| m/sec |

5.5 CORRESPONDING ORBITAL PARAMETERS (SELENOGRAPHIC TRUE OF DATE COORD.)

| | | | | | |
|---|---|---|---|---|---|
| a | 2289.188 km | e | .3340747 | ω | 179.44 deg. |
| Ω | 231.18 deg | i | 20.92 deg | Tp | 5987.326 sec |
| $r_p$ | 1790.80 km | $h_p$ | 52.71 km | P | 208.56 min |
| $r_a$ | 3587.58 km | $h_a$ | 1849.49 km | Tan | 175.89 deg |

5.6 LUNAR HARMONICS USED: 11/11 Bose - 5114

5.7 DATA ARC LENGTH: 16 hrs 13 min. SOS = 6,111.

5.8 DATA SUMMARY:

| STA # | DATA TYPE | START TIME | STOP TIME | NUMBER OF POINTS | STANDARD DEVIATIONS | MEAN |
|---|---|---|---|---|---|---|
| 62 | C3 | 2/14-1820 | 2/14-2145 | 90 | .317 | .0029 |
| | CC3 | 2/14-2016 | " -2033 | 10 | .364 | -.356 |
| 41 | C3 | 2/15-0142 | 2/15-0523 | 152 | .284 | .0129 |
| | CC3 | 2/15-0536 | " -1033 | 229 | .296 | -.0073 |
| 12 | C3 | " -0537 | " -0543 | 7 | .041 | .186 |
| | CC3 | 2/14-1820 | " -0522 | 442 | .284 | -.0012 |

5.9 RESIDUAL PLOTS: TAPE NO. _____ ITEM NO. _____

ATTACHED (TAKEN) DISPLAYED AT CONF. NOT AVAILABLE

5.10 REMARKS: This is the update of the 5114 tailored set. Good fit. Good until 047-1900

TIME OF REPORT: DAY 047, 02 hr 22 min GMT

Prepared by: M Gregan G Goodjwin (RWB)
O.D. Analyst

5. ORBIT DETERMINATION REPORT (Lunar Landing)

5.1 O.D. IDENTIFICATION NO. 9000 DATA NO. _____ TAPE NO. _____

5.2 EPOCH: DAY 046, 08 hr : 10 min : 0 sec (GMT)

5.3 STATE VECTOR (SELC. 1950.0):

| | | | |
|---|---|---|---|
| X | 1255.43545 km | $\dot{X}$ | -.81608070 km/sec |
| Y | 3153.9098 km | $\dot{Y}$ | .24431514 km/sec |
| Z | 1107.7899 km | $\dot{Z}$ | -.44382445 km/sec |

5.4 STANDARD DEVIATIONS:

| | | | | | |
|---|---|---|---|---|---|
| X | 7.38 m | $\dot{X}$ | .0073 m/s | X | NONE m | $\dot{X}$ | NONE m/sec |
| Y | 34.4 m | $\dot{Y}$ | .0257 m/s | Y | ↓ m | $\dot{Y}$ | ↓ m/sec |
| Z | 100.2 m | $\dot{Z}$ | .0277 m/s | Z | ↓ m | $\dot{Z}$ | ↓ m/sec |

5.5 CORRESPONDING ORBITAL PARAMETERS (FOR MEAN LUNAR EQUATOR AND EQUINOX OF DATE COORD.)

| | | | | | |
|---|---|---|---|---|---|
| a | 2688.88 km | e | .33445195 | $\omega$ | 179.214 deg. |
| $\Omega$ | 223.839 deg | i | 20.7753 | $T_p$ | 5733.35 sec |
| $r_p$ | 1789.58 km | $h_p$ | 51.4870 | P | 208.532 min |
| $r_a$ | 3588.18 km | $h_a$ | 1850.09 | Sun | — deg |

5.6 LUNAR HARMONICS USED: LRC 11/11 modified by 5002 and 9000

5.7 DATA ARC LENGTH: _____ min. SOS=

5.8 DATA SUMMARY:

| STA # | DATA TYPE | START TIME | STOP TIME | NO. OF POINTS | STANDARD DEVIATIONS | MEAN |
|---|---|---|---|---|---|---|
| 62 | C3 | 2/15 1835 | 2/15 2103 | 90 | .138 | -.00499 |
| 62 | CC3 | 2/15 1133 | 2/15 1931 | 226 | .720 | -.076 |
| 41 | CC3 | 2/15 0810 | 2/15 1034 | 135 | .619 | .100 |
| 12 | CC3 | 2/15 1833 | 2/15 2103 | 134 | .700 | .0672 |

5.9 RESIDUAL PLOTS: TAPE NO. _____ DATA NO. _____

ATTACHED DISPLAYED AT CONF. (NOT AVAILABLE)

5.10 REMARKS: Batch run all perilune data Solved for state, and C32, C42, C33, C43, 530, 542, 533, 543

TIME OF REPORT: DAY 067, 05 hr 43 min GMT

Prepared by: D. C. Thelin RWB
O.D. Analyst

5. ORBIT DETERMINATION REPORT (LUNAR ELLIPSE)

5.1 O.D. IDENTIFICATION NO. 5002 ITEM NO. _____ TAPE NO. _____

5.2 EPOCH: DAY 046, 15 hr : 08 min : 36.000 sec (GMT)

5.3 STATE VECTOR (SELC. 1950.0):

| | | | |
|---|---|---|---|
| X | 1180.3758 km | $\dot{X}$ | −0.22761303 km/sec |
| Y | 3173.7299 km | $\dot{Y}$ | +0.21237940 km/sec |
| Z | 1153.8924 km | $\dot{Z}$ | +0.43339610 km/sec |

5.4 STANDARD DEVIATIONS:

| | | | | A PRIORI | | | |
|---|---|---|---|---|---|---|---|
| X | 5.6 m | $\dot{X}$ | .008 m/s | X | 0 m | $\dot{X}$ | 0 m/sec |
| Y | 27.5 m | $\dot{Y}$ | .022 m/s | Y | 1 m | $\dot{Y}$ | 1 m/sec |
| Z | 77.2 m | $\dot{Z}$ | .027 m/s | Z | 1 m | $\dot{Z}$ | 1 m/sec |

5.5 CORRESPONDING ORBITAL PARAMETERS (SELENOGRAPHIC TRUE OF DATE COORD.)

| | | | | | |
|---|---|---|---|---|---|
| a | 2689.2443 km | e | .33467497 | ω | 179.52 deg. |
| Ω | 219.74 deg | i | 20.84 deg | Tp | 5?24.3 sec |
| $r_p$ | 1779.22 km | $h_p$ | 51.13 km | P | 208.57 min |
| $r_a$ | 3599.2670 km | $h_a$ | 1851.18 km | Tan | _____ deg |

5.6 LUNAR HARMONICS USED: LRC 11/11-5001 /MODIFIED

5.7 DATA ARC LENGTH: 13 hrs _____ min. SOS=13,650.

5.8 DATA SUMMARY:

| STA # | DATA TYPE | START TIME | STOP TIME | NUMBER OF POINTS | STANDARD DEVIATIONS | MEAN |
|---|---|---|---|---|---|---|
| 62 | CC3 | 2/15-1508 | 2/15-1730 | 80 | .683 | .455 |
| | | | | | | |
| 41 | CC3 | 2/16-0503 | → | 1 | 0 | −.7 |
| | | | | | | |
| 12 | CC3 | 2/15-1832 | 2/16-0401 | 421 | .466 | .0338 |
| | | | | | | |

5.9 RESIDUAL PLOTS: TAPE NO. _____ ITEM NO. _____

ATTACHED DISPLAYED AT CONF. NOT AVAILABLE

5.10 REMARKS: Solved for 32, 33, 42, 43 - C's & S's.
No RU's or C3 data included in fit.
This is an update of the "failed" harmonics.

TIME OF REPORT: DAY , hr min GMT

Prepared by: M.M. Gottlieb G. Goodwin (RWB)
O.D. Analyst

5. ORBIT DETERMINATION REPORT (LUNAR ORBITER)

5.1 O.D. IDENTIFICATION NO. 900 [illegible] TAPE NO. _____
TAPE NO. _____

5.2 EPOCH: DAY 047, 05 hr : [illegible] min : 00 sec (GMT)

5.3 STATE VECTOR (SELC. 1950.0):

| | | | | | |
|---|---|---|---|---|---|
| X | 1312.3837 | km | $\dot{X}$ | -.80475049 | km/sec |
| Y | 3132.8486 | km | $\dot{Y}$ | .26606452 | km/sec |
| Z | 1090.2569 | km | $\dot{Z}$ | .45[illegible]3293 | km/sec |

5.4 STANDARD DEVIATIONS:

| | | | | A PRIORI | | | |
|---|---|---|---|---|---|---|---|
| X | 8.93 m | $\dot{X}$ | .0076 m/s | X | NONE m | $\dot{X}$ | NONE m/sec |
| Y | 16.3 m | $\dot{Y}$ | .0214 m/s | Y | \" m | $\dot{Y}$ | \" m/sec |
| Z | 59.3 m | $\dot{Z}$ | .0256 m/s | Z | \" m | $\dot{Z}$ | \" m/sec |

5.5 CORRESPONDING ORBITAL PARAMETERS (SELENOCENTRIC TRUE OF DATE COORD.)

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| a | 2689.0432 | km | e | .33517739 | $\omega$ | 180.051 | deg. |
| $\Omega$ | 211.733 | deg | i | 20.9705 | Tp | 5654.9 | sec |
| $r_p$ | 1787.74 | km | $h_p$ | 49.6467 | P | 208.55 | min |
| $r_a$ | 3590.35 | km | $h_a$ | 1852.24 | Tan | [illegible] | deg |

5.6 LUNAR HARMONICS USED: LRC 11/11 modified thru 5002 and 9002

5.7 DATA ARC LENGTH: 13 hrs _____ min. SOS= 20,360.

5.8 DATA SUMMARY:

| STA # | DATA TYPE | START TIME | STOP TIME | NUMBER OF POINTS | STANDARD DEVIATIONS | MEAN |
|---|---|---|---|---|---|---|
| 62 | CC3 | 2/11.1206 | 3/11.1802 | 234 | .677 | -.107 |
| 41 | CC3 | 2/11.0503 | 2/11.1102 | 293 | .578 | -.0347 |
| | | | | | | |
| | | | | | | |

5.9 RESIDUAL PLOTS: TAPE NO. _____ ITEM NO. _____
ATTACHED DISPLAYED AT CONF. NOT AVAILABLE

5.10 REMARKS: Processed all perilune data Solved for state and C32, C42, C33, C43, S32, S42, S33, S43

TIME OF REPORT: DAY 067, 04 hr 53 min GMT

Prepared by: D. C. Trilling R W B
O.D. Anal.

5. ON-BOARD INITIATION REPORT (LUNAR ORBIT)

5.1 O.D. IDENTIFICATION NO. [illegible] ITEM NO. 436

TAPE NO. 8375

5.2 EPOCH: DAY 47, 19 hr : 00 min : 00 sec (GMT)

5.3 STATE VECTOR (SELG. 1950.0):

| | | | |
|---|---|---|---|
| X | 1015.7043 km | Ẋ | -.3469 5572 km/sec |
| Y | 3202.1598 km | Ẏ | .1415 7290 km/ |
| Z | 1259.4070 km | Ż | .4151 7850 km/ |

5.4 STANDARD DEVIATIONS:

| | | | | A PRIORI | | | |
|---|---|---|---|---|---|---|---|
| X | 9.5 m | Ẋ | .016 m/s | X | 9 m | Ẋ | Ø m/sec |
| Y | 33.3 m | Ẏ | .036 m/s | Y | ∞ m | Ẏ | ∞ m/sec |
| Z | 96.2 m | Ż | .074 m/s | Z | ∞ m | Ż | ∞ m/sec |

5.5 CORRESPONDING ORBITAL PARAMETERS (SELENOGRAPHIC TRUE OF DATE COORD.)

| | | | | | |
|---|---|---|---|---|---|
| a | 2687.9330 km | e | .3377 5797 | ω | 170.89 deg. |
| Ω | 203.39 deg | i | 21.32 deg | Tp | 6002.8 sec |
| $r_p$ | 784.07 km | $h_p$ | 47.98 km | P | 208.54 min |
| $r_a$ | 3591.79 km | $h_a$ | 1953.70 km | Tan | 176.15 deg |

5.6 LUNAR HARMONICS USED: LRC 11/11/6 Truncated

5.7 DATA ARC LENGTH: 50 ORBITS : 16 hrs 27 min. SOS = 54,356

5.8 DATA SUMMARY:

| STA # | DATA TYPE | START TIME | STOP TIME | NUMBER OF POINTS | STANDARD DEVIATIONS | MEAN |
|---|---|---|---|---|---|---|
| 62 | CCB | 2/6 1906 | 2/6 21:31 | 122 | 1.14 | .193 |
| 12 | CCB | 2/6 22:37 | 2/7 06:33 | 333 | .873 | -.0495 |
| 41 | CCB | 2/7 05:39 | 2/7 06:33 | 55 | .557 | -.224 |
| 12 | CCB | 2/7 06:52 | 2/7 07:09 | 15 | .257 | -.743 |
| 41 | CCB | 2/7 8:195 | 2/7 11:33 | 212 | .811 | .0445 |
| | | | | | | |

5.9 RESIDUAL PLOTS: TAPE NO. _____ ITEM NO. _____

ATTACHED DISPLAYED AT CONF. NOT AVAILABLE

5.10 REMARKS: DSS 41 + DSS 61 seemed to fit separately with DSS 12 on either pass. The first pass at 41 and second pass at 41 seemed good over all

TIME OF REPORT: DAY 049, 02 hr 24 min GMT

Prepared by: R W Burns RWB
O.D. Analyst

5. O[illegible] DETERMINATION REPORT (LUNAR ORBITER)

5.1 O.D. IDENTIFICATION NO. 5356 ITEM NO. _____ TAPE NO. _____

5.2 EPOCH: DAY 048, 11 hr : 15 min : 00 sec (GMT)

5.3 STATE VECTOR (SELC. 1950.0):

| | | | | | |
|---|---|---|---|---|---|
| X | -270.00482 | km | $\dot{X}$ | -.90377374 | km/sec |
| Y | 3055.8515 | km | $\dot{Y}$ | -.35161456 | km/sec |
| Z | 1698.0940 | km | $\dot{Z}$ | .18025202 | km/sec |

5.4 STANDARD DEVIATIONS:

| | | | | A PRIORI | | | |
|---|---|---|---|---|---|---|---|
| X | 11.4 m | $\dot{X}$ | .0156 m/s | X | NONE m | $\dot{X}$ | NONE m/sec |
| Y | 51.3 m | $\dot{Y}$ | .0245 m/s | Y | " m | $\dot{Y}$ | " m/sec |
| Z | 97.0 m | $\dot{Z}$ | .0249 m/s | Z | " m | $\dot{Z}$ | " m/sec |

5.5 CORRESPONDING ORBITAL PARAMETERS (SELENOGRAPHIC TRUE OF DATE COORD.)

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| a | 2688.63 | km | e | .33670190 | $\omega$ | 181.095 | deg. |
| $\Omega$ | 191.806 | deg | i | 21.258187 | deg Tp | -5054.8 | sec |
| $r_p$ | 17833.61 | km | $h_p$ | 45.2706 | km P | 208.50 | min |
| $r_a$ | 3593.89 | km | $h_a$ | 1853.80 | km Tan | ——— | deg |

5.6 LUNAR HARMONICS USED: LRC modified by 5003 and 5356

5.7 DATA ARC LENGTH: 16 hrs 20 min. SOS-52334

5.8 DATA SUMMARY:

| STA # | DATA TYPE | START TIME | STOP TIME | NUMBER OF POINTS | STANDARD DEVIATIONS | MEAN |
|---|---|---|---|---|---|---|
| 62 | C3 | 2/17 2014 | 2/17 2203 | 99 | .849 | -.029 |
| 62 | CC3 | 2/17 1615 | 2/17 2003 | 141 | .891 | -.298 |
| 41 | C3 | 2/180615 | 2/180652 | 39 | .712 | -.03 |
| 41 | CC3 | 2/180706 | 2/180834 | 82 | .777 | -.148 |
| 12 | C3 | 2/180706 | 2/180709 | 4 | .064 | -.563 |
| 12 | CC3 | 2/17 2014 | 2/180659 | 405 | .801 | -.257 |

5.9 RESIDUAL PLOTS: TAPE NO. _____ ITEM NO. _____

ATTACHED DISPLAYED AT CONF. NOT AVAILABLE X

5.10 REMARKS: Solved for state and C32, C42, C33, C43, S32, S42, S33, S43. Processed all available data. The fit was fair. Best OD at this present time.

TIME OF REPORT: DAY 049, 13 hr 0 min GMT

Prepared by: D. C. Thakin (R) W B
O.D. Analyst

5. [illegible] (LUNAR ELLIPSE)

5.1 O.D. IDENTIFICATION NO. 5158 ~ ITEM NO. _____ TAPE NO. _____

5.2 EPOCH: DAY 48 , 22 hr : 50 min : 00.0 sec (GMT)

5.3 STATE VECTOR (SELC. 1950.0):

| | | | |
|---|---|---|---|
| X 908.34679 | km | $\dot{X}$ -.85828379 | km/sec |
| Y 3220.1252 | km | $\dot{Y}$ .10223246 | km/sec |
| Z 1309.3742 | km | $\dot{Z}$ .39828277 | km/sec |

5.4 STANDARD DEVIATIONS:

| | | | | A PRIORI | | | |
|---|---|---|---|---|---|---|---|
| X 16.91 m | $\dot{X}$ .0221 m/s | X | m | $\dot{X}$ | m/sec |
| Y 14.60 m | $\dot{Y}$ .0403 m/s | Y | m | $\dot{Y}$ | m/sec |
| Z 51.76 m | $\dot{Z}$ .0541 m/s | Z | m | $\dot{Z}$ | m/sec |

5.5 CORRESPONDING ORBITAL PARAMETERS (SELENOGRAPHIC TRUE OF DATE COORD.)

| | | | | | |
|---|---|---|---|---|---|
| a 2658.9711 km | e .33676509 | | $\omega$ 131.10975 deg. |
| $\Omega$ 183.41027 deg | i 21.267157 deg | | Tp 6102.9425 sec |
| $r_p$ 1765.4125 km | $h_p$ -45.329529 km | | P 203.54294 min |
| $r_a$ 3552.5227 km | $h_a$ 1856.4827 km | | Tan _____ deg |

5.6 LUNAR HARMONICS USED: "11 modified by 5158A

5.7 DATA ARC LENGTH: 13 hrs 14 min. SOS = 15834

5.8 DATA SUMMARY:

| STA # | DATA TYPE | START TIME | STOP TIME | NUMBER OF POINTS | STANDARD DEVIATIONS | MEAN |
|---|---|---|---|---|---|---|
| 41 | CCB | 2/0 09:05 | 2/0 12:[illegible] | 211 | .422 | -.145 |
| | | | | | | |
| 12 | CCB | 2/23 13 | 2/1 07 00 | 309 | .569 | -.251 |
| | | | | | | |
| | | | | | | |
| | | | | | | |
| | | | | | | |

5.9 RESIDUAL PLOTS: TAPE NO. _____ ITEM NO. _____

ATTACHED DISPLAYED AT CONF. NOT AVAILABLE ✓

5.10 REMARKS: The OD is rather good, the fit is fairly good, considering the geometry of the [illegible] and that the previous and present data procured. Harmonics solved for: C32, C33, C42, C43, S32, S33 S42, S43

TIME OF REPORT: DAY 049, 17 hr 12 min GMT

Prepared by: J.W. Anderson R W B
O.D. Analyst

5. ORBIT DETERMINATION REPORT (LUNAR ELLIPSE)

5.1 O.D. IDENTIFICATION NO. 5240 ITEM NO. _____ TAPE NO. _____

5.2 EPOCH: DAY 49, 05 hr : 50 min : 00 sec (GMT)

5.3 STATE VECTOR (SELC. 1950.0):

| | | | |
|---|---|---|---|
| X | 749.02401 km | $\dot{X}$ | -.97532445 km/sec |
| Y | 3234.4479 km | $\dot{Y}$ | .04241512 km/sec |
| Z | 1378.5699 km | $\dot{Z}$ | .36918731 km/sec |

5.4 STANDARD DEVIATIONS:

| | | | | A PRIORI | | | |
|---|---|---|---|---|---|---|---|
| X | 10.91 m | $\dot{X}$ | .0109 m/s | X | ____ m | $\dot{X}$ | ____ m/sec |
| Y | 8.23 m | $\dot{Y}$ | .0194 m/s | Y | ____ m | $\dot{Y}$ | ____ m/sec |
| Z | 24.37 m | $\dot{Z}$ | .0275 m/s | Z | ____ m | $\dot{Z}$ | ____ m/sec |

5.5 CORRESPONDING ORBITAL PARAMETERS (SELENOGRAPHIC TRUE OF DATE COORD.)

| | | | | | |
|---|---|---|---|---|---|
| a | 2688.7304 km | e | .33692745 | $\omega$ | 181.25298 deg. |
| $\Omega$ | 184.44221 deg | i | 21.022575 deg | Tp | -6235.4730 sec |
| $r_p$ | 1782.9559 km | $h_p$ | 94.925721 km | P | 208.53819 min |
| $r_a$ | 3594.9048 km | $h_a$ | 1856.8148 km | Tan | ____ deg |

5.6 LUNAR HARMONICS USED: 11/11 Harmonics Medium Log 526

5.7 DATA ARC LENGTH: 12 hrs 53 min. SOS = 16,747

5.8 DATA SUMMARY:

| STA # | DATA TYPE | START TIME | STOP TIME | NUMBER OF POINTS | STANDARD DEVIATIONS | MEAN |
|---|---|---|---|---|---|---|
| 62 | C3 | 2/18 13:13 | 2/18 14:07 | 44 | .493 | -.023 |
| 62 | CC3 | 2/18 14:12 | 2/18 19:05 | 200 | .656 | -.0829 |
| 41 | C3 | 2/18 06:14 | 2/18 15:17 | 42 | .346 | -.0465 |
| 41 | CC3 | 2/18 07:05 | 2/18 12:58 | 258 | .543 | -.169 |
| 12 | C3 | 2/18 07:06 | 2/18 07:07 | 4 | .179 | .362 |
| 12 | CC3 | 2/18 06:12 | 2/18 06:59 | 44 | .268 | .264 |

5.9 RESIDUAL PLOTS: TAPE NO. _____ ITEM NO. _____

ATTACHED DISPLAYED AT CONF. NOT AVAILABLE

5.10 REMARKS: The S.O.S. is computationally [illegible] indicative of a good fit for the elliptic condition. 18 iterations were performed.

TIME OF REPORT: DAY 050, 01 hr 30 min GMT

Prepared by: D L Black RWB
O.D. Analyst

5. OBJECT IDENTIFICATION ELEMENT (LUNAR ORBITER)

5.1 O.D. IDENTIFICATION NO. 5?XC ITEM NO. _____ TAPE NO. _____

5.2 EPOCH: DAY 047, 16 hr : 40 min : _____ sec (GMT)

5.3 STATE VECTOR (SELC. 1950.0):

| | | | |
|---|---|---|---|
| X | -581.08209 km | $\dot{X}$ | -.88580512 km/sec |
| Y | 2921.6677 km | $\dot{Y}$ | -.46683777 km/sec |
| Z | 1749.5610 km | $\dot{Z}$ | .11111329 km/sec |

5.4 STANDARD DEVIATIONS:

| | | | | A PRIORI | | | |
|---|---|---|---|---|---|---|---|
| X | 17.5 m | $\dot{X}$ | .022 m/s | X | NONE m | $\dot{X}$ | NONE m/sec |
| Y | 53.2 m | $\dot{Y}$ | .031 m/s | Y | | $\dot{Y}$ | m/sec |
| Z | 95.9 m | $\dot{Z}$ | .047 m/s | Z | | $\dot{Z}$ | m/sec |

5.5 CORRESPONDING ORBITAL PARAMETERS (SELENOGRAPHIC TRUE OF DATE COORD.)

| | | | | | |
|---|---|---|---|---|---|
| a | 2488.8540 km | e | .33711355 | $\omega$ | 181.62377 deg. |
| $\Omega$ | 172.412 deg | i | 21.1253 deg | Tp | -4772.4 sec |
| $r_p$ | 1732.40 km | $h_p$ | 44-.31 km | P | 208.53 min |
| $r_a$ | 3595.30 km | $h_a$ | 1857.21 km | Tan | ——— deg |

5.6 LUNAR HARMONICS USED: LRC 11/11 mon. thru deg 5364 and 5004

5.7 DATA ARC LENGTH: 12 hrs 55 min. SOS = 4093.

5.8 DATA SUMMARY:

| STA # | DATA TYPE | START TIME | STOP TIME | NUMBER OF POINTS | STANDARD DEVIATIONS | MEAN |
|---|---|---|---|---|---|---|
| 12 | C3 | 2/18 2100 | 2/18 2106 | 6 | .0376 | .329 |
| 12 | CC3 | 2/18 2114 | 2/19 0552 | 339 | .244 | -.036 |
| | | | | | | |
| 62 | C3 | 2/18 2115 | 2/19 0205 | 203 | .214 | .027 |
| 62 | CC3 | 2/18 1645 | 2/18 2106 | 174 | .240 | -.111 |
| | | | | | | |

5.9 RESIDUAL PLOTS: TAPE NO. _____ ITEM NO. _____

ATTACHED DISPLAYED AT CONF. NOT AVAILABLE X

5.10 REMARKS: Solved for stat. no. C32, C42, C33, C43, S32, S42, S33, S43. Processed all available data. The fit looks good.

TIME OF REPORT: DAY 050, 13 hr 00 min GMT

Prepared by: D. C. Tolin R W B
O.D. Analyst

5. ORBIT DETERMINATION REPORT (LUNAR ELLIPSE)

5.1 O.D. IDENTIFICATION NO. 5272 ITEM NO. 0145 TAPE NO. 8583

5.2 EPOCH: DAY 050, 06 hr : 30 min : 0.0 sec (GMT)

5.3 STATE VECTOR (SELC. 1950.0):

| | | | |
|---|---|---|---|
| X | -3786.9618 km | $\dot{X}$ | -.89854357 km/sec |
| Y | 3021.3594 km | $\dot{Y}$ | -.38478902 km/sec |
| Z | 1720.9263 km | $\dot{Z}$ | .15393643 km/sec |

5.4 STANDARD DEVIATIONS:

| | | | | A PRIORI | | | |
|---|---|---|---|---|---|---|---|
| X | 8 m | $\dot{X}$ | .011 m/s | X | 0 m | $\dot{X}$ | 0 m/sec |
| Y | 18 m | $\dot{Y}$ | .015 m/s | Y | 0 m | $\dot{Y}$ | 0 m/sec |
| Z | 33 m | $\dot{Z}$ | .026 m/s | Z | 0 m | $\dot{Z}$ | 0 m/sec |

5.5 CORRESPONDING ORBITAL PARAMETERS (SELENOGRAPHIC TRUE OF DATE COORD.)

| | | | | | |
|---|---|---|---|---|---|
| a | 2628.82 km | e | .337054 | $\omega$ | 182.06 deg. |
| $\Omega$ | 170.71 deg | i | 21.05 deg | Tp | -50268 sec |
| $r_p$ | 1782.58 km | $h_p$ | 44.49 km | P | 208.53 min |
| $r_a$ | 3595.18 km | $h_a$ | 1857.09 km | Tan | deg |

5.6 LUNAR HARMONICS USED: 11/11 harmonics mod. 5272

5.7 DATA ARC LENGTH: 13 hrs min. SOS = 3570

5.8 DATA SUMMARY:

| STA # | DATA TYPE | START TIME | STOP TIME | NUMBER OF POINTS | STANDARD DEVIATIONS | MEAN |
|---|---|---|---|---|---|---|
| 12 | C3 | 50/0700 | 50/0904 | 101 | .199 | -.0002 |
| 41 | C3 | 50/1455 | 50/1503 | 29 | .259 | -.034 |
| | CC3 | 50/0649 | 50/1418 | 281 | .260 | -.068 |
| 62 | C3 | 50/1347 | 50/1429 | 28 | .285 | -.029 |
| | CC3 | 50/1434 | 50/1958 | 200 | .281 | -.091 |
| | | | | | | |

5.9 RESIDUAL PLOTS: TAPE NO. _____ ITEM NO. _____

ATTACHED DISPLAYED AT CONF. NOT AVAILABLE

5.10 REMARKS: The results of this determination look very good

TIME OF REPORT: DAY 057, 00 hr 30 min GMT

Prepared by: [signature] R W B
O.D. Analyst

1. ORBIT DETERMINATION REPORT (LUNAR ELLIPSE)

5.1 O.D. IDENTIFICATION NO. 5126 ITEM NO. _____ TAPE NO. _____

5.2 EPOCH: DAY 050, 20 hr : 30 min : 00 sec (GMT)

5.3 STATE VECTOR (SELC. 1950.0):

| | | | |
|---|---|---|---|
| X | -708.88349 km | $\dot{X}$ | -.87533673 km/sec |
| Y | 2855.3622 km | $\dot{Y}$ | -.51006530 km/sec |
| Z | 1726.7576 km | $\dot{Z}$ | .08744779 km/sec |

5.4 STANDARD DEVIATIONS:

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| | | | | A PRIORI | | | |
| X | 42.5 m | $\dot{X}$ | .0444 m/s | X | ____ m | $\dot{X}$ | ____ m/sec |
| Y | 63.4 m | $\dot{Y}$ | .0599 m/s | Y | ____ m | $\dot{Y}$ | ____ m/sec |
| Z | 12.8 m | $\dot{Z}$ | .0192 m/s | Z | ____ m | $\dot{Z}$ | ____ m/sec |

5.5 CORRESPONDING ORBITAL PARAMETERS (SELENOGRAPHIC TRUE OF DATE COORD.)

| | | | | | |
|---|---|---|---|---|---|
| a | 2688.5437 km | e | .3784627 | $\omega$ | 192.6955 deg. |
| $\Omega$ | 162.6786 deg | i | 2.916013 deg | Tp | -4662.1904 sec |
| $r_p$ | 1773.1163 km | $h_p$ | 95.0.6367 km | P | 208.52803 min |
| $r_a$ | 3594.5196 km | $h_a$ | 856.4797 km | Tan | — deg |

5.6 LUNAR HARMONICS USED: 11/4 modified LAT: — LONG: —

5.7 DATA ARC LENGTH: 13 hrs 10 min. SOS= 17431

5.8 DATA SUMMARY:

| STA # | DATA TYPE | START TIME | STOP TIME | NUMBER OF POINTS | STANDARD DEVIATIONS | MEAN |
|---|---|---|---|---|---|---|
| 62 | C3 | 2/12 [illegible] | 2/20 [illegible] | 106 | .651 | -.0745 |
| 62 | C2 | 2/19 [illegible] | 2/19 [illegible] | 130 | .478 | -.257 |
| 41 | C3 | 2/21 [illegible] | 2/20 [illegible] | .134 | .467 | -.0254 |
| 12 | C3 | 2/19 [illegible] | 2/19 [illegible] | 85 | .410 | -.0955 |
| 12 | C3 | 2/20 [illegible] | 2/20 [illegible] | 206 | .53 | -.138 |
| | | | | | | |

5.9 RESIDUAL PLOTS: TAPE NO. _____ ITEM NO. _____

ATTACHED DISPLAYED AT CONF. ~~NOT~~ AVAILABLE

5.10 REMARKS: _____

TIME OF REPORT: DAY 041, 12 hr 40 min GMT

Prepared by: [illegible] (R W B)
O.D. Analyst

5. ORBIT DETERMINATION REPORT (LUNAR ELLIPSE)

5.1 O.D. IDENTIFICATION NO. 5278 ITEM NO. _____ TAPE NO. _____

5.2 EPOCH: DAY 051, 03 hr : 20 min : 0 sec (GMT)

5.3 STATE VECTOR (SELC. 1950.0):

| | | | | | |
|---|---|---|---|---|---|
| X | -342.32067 | km | $\dot{X}$ | -.89971991 | km/sec |
| Y | 3038.8251 | km | $\dot{Y}$ | -.36762150 | km/sec |
| Z | 1716.9148 | km | $\dot{Z}$ | .16690082 | km/sec |

5.4 STANDARD DEVIATIONS:

| | | | | A PRIORI | | | |
|---|---|---|---|---|---|---|---|
| X | 13 m | $\dot{X}$ | .009 m/s | X | 0 m | $\dot{X}$ | 0 m/sec |
| Y | 17 m | $\dot{Y}$ | .012 m/s | Y | 0 m | $\dot{Y}$ | 0 m/sec |
| Z | 32 m | $\dot{Z}$ | .024 m/s | Z | 0 m | $\dot{Z}$ | 0 m/sec |

5.5 CORRESPONDING ORBITAL PARAMETERS (SELENOGRAPHIC TRUE OF DATE COORD.)

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| a | 2688.87 | km | e | .336610 | $\omega$ | 182.51 | deg. |
| $\Omega$ | 159.26 | deg | i | 21.08 | deg Tp | -5029.5 | sec |
| $r_p$ | 1783.77 | km | $h_p$ | 45.68 | km P | 208.53 | min |
| $r_a$ | 3593.97 | km | $h_a$ | 1855.28 | km Tan | $\angle$ 200 | deg |

5.6 LUNAR HARMONICS USED: LRC 11/11 modified 5278

5.7 DATA ARC LENGTH: 13 hrs min. SOS = 9,700

5.8 DATA SUMMARY:

| STA # | DATA TYPE | START TIME | STOP TIME | NUMBER OF POINTS | STANDARD DEVIATIONS | MEAN |
|---|---|---|---|---|---|---|
| 12 | CC3 | 51/0402 | 51/0939 | 261 | .400 | -.100 |
| 41 | C3 | 51/0720 | 51/1557 | 227 | .624 | -.005 |
| | CC3 | 51/1050 | 51/1310 | 131 | .475 | .056 |
| 62 | CC3 | 51/1429 | 51/1612 | 130 | .364 | -.233 |
| | | | | | | |
| | | | | | | |

5.9 RESIDUAL PLOTS: TAPE NO. _____ ITEM NO. _____

ATTACHED DISPLAYED AT CONF. NOT AVAILABLE

5.10 REMARKS: A very good determination.

TIME OF REPORT: DAY 057, 23 hr 30 min GMT

Prepared by: Paul Kinstler (R)(W)B
O.D. Analyst

5. [illegible] (LUNAR EMITTED)

5.1 O.D. IDENTIFICATION NO. 5320 ITEM NO. ____

TAPE NO. ____

5.2 EPOCH: DAY 051, 10 hr : 45 min : 00 sec (G.M.T.)

5.3 STATE VECTOR (SELC. 1950.0):

| | | | |
|---|---|---|---|
| X | -1717.3055 km | $\dot{X}$ | -.64934530 km/sec |
| Y | 1932.7347 km | $\dot{Y}$ | -.74102026 km/sec |
| Z | 1681.6221 km | $\dot{Z}$ | -.23310967 km/sec |

5.4 STANDARD DEVIATIONS:

| | | | | A PRIORI | | | |
|---|---|---|---|---|---|---|---|
| X | 59.2 m | $\dot{X}$ | .017 m/s | X | No m | $\dot{X}$ | No m/s |
| Y | 51.6 m | $\dot{Y}$ | .025 m/s | Y | No m | $\dot{Y}$ | No m/s |
| Z | 92.0 m | $\dot{Z}$ | .042 m/s | Z | No m | $\dot{Z}$ | No m/s |

5.5 CORRESPONDING ORBITAL PARAMETERS (SELENOGRAPHIC TRUE OF [illegible]):

| | | | | | |
|---|---|---|---|---|---|
| a | 2699.7607 km | e | .33641519 | $\omega$ | 182.76914 deg |
| $\Omega$ | 155.14631 deg | i | 22.977194 deg | Tp | 3410.7783 |
| $r_p$ | 1774.2209 km | $h_p$ | 46.130451 km | P | 208.51844 |
| $r_a$ | 3625.3002 km | $h_a$ | 1855.2102 km | Tan | ____ deg |

5.6 LUNAR HARMONICS USED: 11/11 modified by 5380

5.7 DATA ARC LENGTH: 12 hrs 52 min. SOS = 34.8

5.8 DATA SUMMARY:

| STA # | DATA TYPE | START TIME | STOP TIME | NUMBER OF POINTS | STANDARD DEVIATIONS | MEAN |
|---|---|---|---|---|---|---|
| 12 | C3 | 2/20 22:53 | 2/20 23:44 | 48 | .131 | -.[illegible] |
| 41 | C3 | 2/20 14:24 | 2/20 15:57 | 93 | .195 | .0492 |
| | CC3 | 2/20 10:50 | 2/20 13:10 | 131 | .302 | -.0705 |
| 62 | CC3 | 2/20 14:24 | 2/20 23:42 | 373 | .233 | .0041 |
| | | | | | | |

5.9 RESIDUAL PLOTS: TAPE NO. ____ ITEM NO. ____

ATTACHED DISPLAYED AT CONF. NOT AVAILABLE

5.10 REMARKS: started with harmonics and state from C.D. 5006.

TIME OF REPORT: DAY 052, 04 hr 42 min GMT

Prepared by: [signature] R N S
O.D. Analyst

5. ORBIT DETERMINATION REPORT (LUNAR ELLIPSE)

5.1 O.D. IDENTIFICATION NO. 5382 ITEM NO. _____ TAPE NO. _____

5.2 EPOCH: DAY 51, 17 hr : 45 min : 00 sec (GMT)

5.3 STATE VECTOR (SELC. 1950.0):

| | | | |
|---|---|---|---|
| X | -1307.4768 km | $\dot{X}$ | -.5934289 km/sec |
| Y | 1756.5025 km | $\dot{Y}$ | -.9978845 km/sec |
| Z | 1627.2816 km | $\dot{Z}$ | -.2805074 km/sec |

5.4 STANDARD DEVIATIONS:

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| X | .47 m | $\dot{X}$ | .024 m/s | X | 0 m | $\dot{X}$ | 0 m/sec |
| Y | .65 m | $\dot{Y}$ | .036 m/s | Y | 0 m | $\dot{Y}$ | 0 m/sec |
| Z | 1.46 m | $\dot{Z}$ | .075 m/s | Z | 0 m | $\dot{Z}$ | 0 m/sec |

A PRIORI

5.5 CORRESPONDING ORBITAL PARAMETERS (SELENOGRAPHIC TRUE OF DATE COORD.)

| | | | | | |
|---|---|---|---|---|---|
| a | 2682.6692 km | e | .33613947 | $\omega$ | 183.21099 deg. |
| $\Omega$ | 150.97897 deg | i | 20.690582 deg | Tp | -3231.4875 sec |
| $r_p$ | 1754.5014 km | $h_p$ | 46.811381 km | P | 208.50282 min |
| $r_a$ | 3592.4371 km | $h_a$ | 1854.3471 km | Tan | _____ deg |

5.6 LUNAR HARMONICS USED: PD 5056 modified by OD 5382

5.7 DATA ARC LENGTH: 13 hrs 22 min. SOS = 10470

5.8 DATA SUMMARY:

| STA # | DATA TYPE | START TIME | STOP TIME | NUMBER OF POINTS | STANDARD DEVIATIONS | MEAN |
|---|---|---|---|---|---|---|
| 42 | C3 | 2/21-0127 | 2/21-0312 | 88 | .397 | .0330 |
| 62 | C3 | 2/20-1754 | 2/21-0113 | 260 | .374 | .0297 |
| 12 | C3 | 2/20-2253 | 2/21-0113 | 64 | .396 | .0261 |
| 12 | C3 | 2/21-0124 | 2/21-0442 | 234 | .447 | .000370 |
| | | | | | | |
| | | | | | | |

5.9 RESIDUAL PLOTS: TAPE NO. _____ ITEM NO. _____

ATTACHED DISPLAYED AT CONF. NOT AVAILABLE

5.10 REMARKS: _____

TIME OF REPORT: DAY 52, 09 hr 57 min GMT

Prepared by [signature] RWB
O.D. Analyst

5. [illegible] (EPOCH, UNITS, ...)

5.1 O.D. IDENTIFICATION NO. 5286 ITEM NO. _____ TAPE NO. _____

5.2 EPOCH: DAY 052, 07 hr : 00 min : 00 sec (GMT)

5.3 STATE VECTOR (SELC. 1950.0):

| | | | |
|---|---|---|---|
| X | 66.593.640 km | $\dot{X}$ | −.9085280 km/sec |
| Y | 3165.9052 km | $\dot{Y}$ | −.2022991 km/sec |
| Z | 1429.8725 km | $\dot{Z}$ | .2488959 km/sec |

5.4 STANDARD DEVIATIONS:

| | | | | | |
|---|---|---|---|---|---|
| | | | A PRIORI | | |
| X | 13.4 m | $\dot{X}$ | .014 m/s | X | 1 m | $\dot{X}$ | 1 m/sec |
| Y | 24.7 m | $\dot{Y}$ | .019 m/s | Y | 1 m | $\dot{Y}$ | 1 m/sec |
| Z | 49.2 m | $\dot{Z}$ | .046 m/s | Z | 1 m | $\dot{Z}$ | 1 m/sec |

5.5 CORRESPONDING ORBITAL PARAMETERS (SELENOGRAPHIC TRUE OF DATE COORD.)

| | | | | | |
|---|---|---|---|---|---|
| a | 2400.0311 km | e | .2354188 | ω | 183.41217 deg. |
| Ω | 142.5460 deg | i | 20.972845 deg | Tp | 0.1263 sec |
| $r_p$ | 1837.0794 km | $h_p$ | 68.89441 km | P | 208.5992 min |
| $r_a$ | 3590.9826 km | $h_a$ | 1852.8927 km | Tan | 359.9947 deg |

5.6 LUNAR HARMONICS USED: 4 PC 11/11 modified 52 54

5.7 DATA ARC LENGTH: 13 hrs 50 min. SOS = 19,222

5.8 DATA SUMMARY:

| STA # | DATA TYPE | START TIME | STOP TIME | NUMBER OF POINTS | STANDARD DEVIATIONS | MEAN |
|---|---|---|---|---|---|---|
| 62 | C3 | 52/1531 | 52/1535 | 4 | .161 | −1.32 |
| 62 | C3 | 52/1542 | 52/2045 | 206 | .602 | .051 |
| 41 | C3 | 52/1542 | 52/1744 | 72 | .351 | −.197 |
| 41 | C3 | 52/0752 | 52/1534 | 326 | .622 | −.121 |
| 12 | C3 | 52/0753 | 52/0857 | 67 | .624 | .0004 |
| | | | | | | |

5.9 RESIDUAL PLOTS: TAPE NO. _____ ITEM NO. _____

ATTACHED DISPLAYED AT CONF. NOT AVAILABLE

5.10 REMARKS: This OD is as good as 5284 even though it included one more [illegible] of Sta. 62 data. Did omitting the early 13 data from sta. 12 (used on 5284) [illegible] the S.C. off?

Time of Report: DAY 053, 02 hr 30 min GMT

Prepared by: [signature] 203
O.D. Analyst

5. ORBIT DETERMINATION REPORT (LUNAR ELLIPSE)

5.1 O.D. IDENTIFICATION NO. 5192 ITEM NO. _____

5.2 EPOCH: DAY 52, 20 (hr) : 10 (min) : 11.0 (sec) (GMT) TAPE NO. _____

5.3 STATE VECTOR (SELC. 1950.0):

| | | | | | |
|---|---|---|---|---|---|
| X | 2140.0489 | km | $\dot{X}$ | -.5553291 64 | km/sec |
| Y | 3524.7113 | km | $\dot{Y}$ | .6845 4316 | km/sec |
| Z | 496.33582 | km | $\dot{Z}$ | .57601873 | km/sec |

5.4 STANDARD DEVIATIONS:

| | | | | A PRIORI | | | |
|---|---|---|---|---|---|---|---|
| X | 77.80 m | $\dot{X}$ | .0192 m/s | X | ____ m | $\dot{X}$ | ____ m/sec |
| Y | 127.0 m | $\dot{Y}$ | .0023 m/s | Y | ____ m | $\dot{Y}$ | ____ m/sec |
| Z | 301.9 m | $\dot{Z}$ | .0210 m/s | Z | ____ m | $\dot{Z}$ | ____ m/sec |

5.5 CORRESPONDING ORBITAL PARAMETERS (SELENOGRAPHIC TRUE OF DATE COORD.)

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| a | -2688.3917 | km | e | .33485590 | $\omega$ | 174.20151 | deg. |
| $\Omega$ | 135.75510 | deg | i | 20.717845 | deg Tp | 43703.5832 | sec |
| $r_p$ | 1752.1678 | km | $h_p$ | 50.077850 | km P | 208.47553 | min |
| $r_a$ | 3588.6154 | km | $h_a$ | 1850.5254 | km Tan | ____ | deg |

5.6 LUNAR HARMONICS USED: 4/11 modified by 5192

5.7 DATA ARC LENGTH: 14 hrs 30 min. SOS=7675.7

5.8 DATA SUMMARY:

| STA # | DATA TYPE | START TIME | STOP TIME | NUMBER OF POINTS | STANDARD DEVIATIONS | MEAN |
|---|---|---|---|---|---|---|
| 62 | CC3 | 3/21 2010 | 3/22 0018 | 166 | .312 | .111 |
| 12 | CC3 | 3/22 0125 | 3/22 1049 | 493 | .385 | -.0152 |

5.9 RESIDUAL PLOTS: TAPE NO. _____ ITEM NO. _____

ATTACHED DISPLAYED AT CONF. NOT AVAILABLE

5.10 REMARKS: a good od, a good fit
Solved for state and the 2 lunar harmonics:
C32, C42, C33, C43, S32, S42, S33, S43. Partials
all positions data.

TIME OF REPORT: DAY 053, 17 hr 51 min GMT

Prepared by: J. W. Underwood R W B
O.D. Analyst

5. [illegible] REPORT (LUNAR MARTOR)

5.1 O.D. IDENTIFICATION NO. 5294 ITEM NO. 0132

TAPE NO. _____

5.2 EPOCH: DAY 054, 07 : 00 : 00 (GMT)
hr min sec

5.3 STATE VECTOR (SELC. 1950.0):

| | | | |
|---|---|---|---|
| X | 1025.7601 km | $\dot{X}$ | -.9293724 km/sec |
| Y | 7174.2413 km | $\dot{Y}$ | .1945631 km/sec |
| Z | 1237.7976 km | $\dot{Z}$ | .4292648 km/sec |

5.4 STANDARD DEVIATIONS:

| | | | | A PRIORI | | | |
|---|---|---|---|---|---|---|---|
| X | 21.3 m | $\dot{X}$ | .0157 m/s | X | / m | $\dot{X}$ | / m/sec |
| Y | 51.9 m | $\dot{Y}$ | .0090 m/s | Y | / m | $\dot{Y}$ | / m/sec |
| Z | 126.9 m | $\dot{Z}$ | .0257 m/s | Z | / m | $\dot{Z}$ | / m/sec |

5.5 CORRESPONDING ORBITAL PARAMETERS (SELENOGRAPHIC TRUE OF DATE COORD.)

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| a | 2669.7791 km | e | .3744093 | $\omega$ | 177.7598 deg. |
| $\Omega$ | 130.3995 deg | i | 21.0223 deg | Tp | 5778.7054 sec |
| $r_p$ | 1720.5245 km | $h_p$ | 52.4344 km | P | 208 5195 min |
| $r_a$ | 3618.0154 km | $h_a$ | 1949.9254 km | Tan | 193.8402 deg |

5.6 LUNAR HARMONICS USED: 11/11 terms ICS modified by 5294

5.7 DATA ARC LENGTH: 14 hrs 0 min. SOS= 10,654

5.8 DATA SUPPORT:

| STA # | DATA TYPE | START TIME | STOP TIME | NUMBER OF POINTS | STANDARD DEVIATIONS | MEAN |
|---|---|---|---|---|---|---|
| 12 | CC3 | 22/0702 | 22/0948 | 156 | .497 | .0[illegible]2 |
| 42 | CC3 | 22/[illegible] | 22/[illegible] | 292 | .421 | -.171 |
| 62 | C3 | 22/700 | 22/[illegible] | 47 | .121 | -.0924 |
| 62 | CC3 | 22/1454 | 22/[illegible] | 102 | .440 | .0670 |
| | | | | | | |
| | | | | | | |

5.9 RESIDUAL PLOTS: TAPE NO. _____ ITEM NO. _____

ATTACHED DISPLAYED AT CONF. NOT AVAILABLE

5.10 REMARKS: This C.O. showed a good fit with C32, C42, C33, C43, S32, S42, S33, S43 harmonics.

TIME OF REPORT: DAY 054, 00 hr 00 min GMT

Prepared by: [signature] O.D. Analyst

5. ORBIT DETERMINATION REPORT (LUNAR ORBIT)

5.1 O.D. IDENTIFICATION NO. 9004 ITEM NO. _____ CARD NO. _____

5.2 EPOCH: DAY 053, 20 hr : 40 min : 00 sec (GMT)

5.3 STATE VECTOR (SELC. 1950.0):

| | | | |
|---|---|---|---|
| X | 1719.8761 km | $\dot{X}$ | -.71106559 km/sec |
| Y | 2896.1870 km | $\dot{Y}$ | .46498922 km/sec |
| Z | 861.33549 km | $\dot{Z}$ | .52407975 km/sec |

5.4 STANDARD DEVIATIONS:

| | | | | A PRIORI | | | |
|---|---|---|---|---|---|---|---|
| X | 58.1 m | $\dot{X}$ | .0207 m/s | X | NONE m | $\dot{X}$ | NONE m/sec |
| Y | 135.7 m | $\dot{Y}$ | .00596 m/s | Y | ↓ m | $\dot{Y}$ | ↓ m/sec |
| Z | 330.5 m | $\dot{Z}$ | .0242 m/s | Z | ↓ m | $\dot{Z}$ | ↓ m/sec |

5.5 CORRESPONDING ORBITAL PARAMETERS (SELENOGRAPHIC TRUE OF DATE COORD.)

| | | | | | |
|---|---|---|---|---|---|
| a | 2688.23 km | e | .3333532 | $\omega$ | 184.676 deg. |
| $\Omega$ | 122.023 deg | i | 20.7859 deg | Tp | 4952.5 sec |
| $r_p$ | 1792.04 km | $h_p$ | 53.9500 km | P | 208.457 min |
| $r_a$ | 3584.42 km | $h_a$ | 1846.33 km | Tm | _____ deg |

5.6 LUNAR HARMONICS USED: LRC 11/1 mean Lun for 5294 and 9004

5.7 DATA ARC LENGTH: 14 hrs 42 min. SOS=3,599

5.8 DATA SUMMARY:

| STA # | DATA TYPE | START TIME | STOP TIME | NUMBER OF POINTS | STANDARD DEVIATIONS | MEAN |
|---|---|---|---|---|---|---|
| 62 | C3 | 2/23 0228 | 3/3 0336 | 46 | .300 | .0254 |
| 42 | CC3 | 2/23 2040 | 3/3 0044 | 155 | .256 | .0166 |
| 41 | C3 | 2/23 0158 | 3/3 1122 | 82 | .0741 | .00701 |
| 12 | CC3 | 2/23 0228 | 3/3 1122 | 391 | .229 | -.000358 |

5.9 RESIDUAL PLOTS: TAPE NO. _____ ITEM NO. _____

ATTACHED DISPLAYED AT CONF. (NOT AVAILABLE)

5.10 REMARKS: Processed all perilune data I plotted for state cuts: C31, C32, C42, C33, C43, S31, S32, S42, S33, S43

TIME OF REPORT: DAY 067, 08 hr 18 min GMT

Prepared by: D. C. Rankin EWB
O.D. Analyst

## 3.3 LISTING OF EVALUATION PROGRAM INPUT DECKS

This section contains listings of all the data cards input to the Lunar Orbiter photographic evaluation program EVAL.

The input data decks provide the following data to the photographic evaluation program.

1) Spacecraft (camera) state vector at a time just prior to the photo time which is within the data arc used in determining the spacecraft orbit (selenocentric 1950.0).

2) Harmonics used in the orbit determination;

3) Spacecraft maneuvers from celestial reference to photo attitude;

4) Photo times

5) Other control parameters needed for proper operation of the evaluation program.

As with the included GENI listing, these deck listings are not required for the use of the photographic evaluation data. They are included for purposes of reference to the data input to the evaluation program. In all cases the integrating trajectory program, SPACEL, was used by EVAL to yield the support data.

## FRAMES 5 THRU 20

```
* EVALUATION OF SITE III P-1       PHOTOS (OD NO. 5001 )                (4
J20=+.20700000E-03 J30=-.44599999E-04 J40=-.20900000E-04
C21=+.88000000E-05 C22=+.27600000E-04 C31=+.44401383E-04
C32=-.62966149E-05 C33=-.45361714E-05 C41=-.61162580E-05
C42=+.92330089E-05 C43=+.27330266E-05 C44=+.76665007E-06
S21=-.41100000E-04 S22=-.57999998E-05 S31=+.20191421E-04
S32=+.34777149E-05 S33=+.11442012E-05 S41=-.79452936E-05
S42=-.55014761E-06 S43=-.38057865E-05 S44=+.86227480E-06
TRANST=1.,67.,2.,15.,9.,59.,39.220
TRANSF+2=    -745.17982483  -1558.45892334    -503.12144089
TRANSF+5=       1.65354814      -.39733106       -.85715831
BIG=44.,1.,1.,1.,0.,16.,4.,35.250,2.917,0.
1.,3.,2.
-17.84,17.86,3.98
67.,2.,15.,10.,00.,40.6
67.,2.,15.,10.,00.,43.2
67.,2.,15.,10.,00.,45.7
67.,2.,15.,10.,00.,48.2
67.,2.,15.,10.,00.,50.6
67.,2.,15.,10.,00.,53.1
67.,2.,15.,10.,00.,55.6
67.,2.,15.,10.,00.,58.1
67.,2.,15.,10.,01.,00.5
67.,2.,15.,10.,01.,03.0
67.,2.,15.,10.,01.,05.4
67.,2.,15.,10.,01.,07.9
67.,2.,15.,10.,01.,10.3
67.,2.,15.,10.,01.,12.7
67.,2.,15.,10.,01.,15.2
67.,2.,15.,10.,01.,17.6
0.,0.,0.,0.,0.,0.
ORFIN=1.
ORNUM=44.
ARB=1.
TINY=2.,30.,50.,10.,-10.
0.
* END OF PHOTO EVALUATION DATA                                          (0
```

## FRAMES 21 THRU 24

```
* EVALUATION OF SITE III S-1       PHOTOS (OD NO. 5001 )                (4
TRANST=1.,67.,2.,15.,10.,3.,17.850
TRANSF+2=    -371.04999542  -1613.20301819    -679.08714294
TRANSF+5=       1.75763303      -.10094232       -.74679595
BIG=44.,1.,1.,1.,0.,4.,4.,47.167,-1.833,0.
1.,3.,2.
-17.84,17.86,3.98
67.,2.,15.,10.,04.,19.4
67.,2.,15.,10.,04.,21.7
67.,2.,15.,10.,04.,24.1
67.,2.,15.,10.,04.,26.5
0.,0.,0.,0.,0.,0.
ORFIN=1.
ORNUM=44.
ARB=1.
TINY=2.,40.,60.,10.,-10.
0.
* END OF PHOTO EVALUATION DATA                                          (0
```

## FRAMES 25 THRU 32

```
* EVALUATION OF SITE III P-2A     PHOTOS (DD NO. 9000 )                (4
J20 +.20700000E-03  J30 -.44599999E-04  J40 -.20900000E-04
C21 +.88000000E-05  C22 +.27600000E-04  C31 +.44401383E-04
C32 +.70745152E-04  C33 -.18209380E-04  C41 -.61162580E-05
C42 +.14731578E-04  C43 +.11653262E-05  C44 +.76665007E-06
S21 -.41100000E-04  S22 -.57999998E-05  S31 +.20191421E-04
S32 -.13340403E-04  S33 +.18713945E-04  S41 -.79452936E-05
S42 +.44897937E-04  S43 -.41361767E-05  S44 +.86227480E-06
TRANST=1.,67.,2.,15.,13.,31.,3.320
TRANSF+2=    -454.55074692  -1608.07238770    -638.93042755
TRANSF+5=       1.74277866      -.17077578       -.76882432
BIG=45.,1.,1.,1.,0.,8.,4.,42.417,-0.833,0.
1.,3.,2.
-20.98,16.51,-5.38
67.,2.,15.,13.,32.,03.6
67.,2.,15.,13.,32.,05.9
67.,2.,15.,13.,32.,08.2
67.,2.,15.,13.,32.,10.5
67.,2.,15.,13.,32.,12.7
67.,2.,15.,13.,32.,15.0
67.,2.,15.,13.,32.,17.3
67.,2.,15.,13.,32.,19.6
0.,0.,0.,0.,0.,0.
ORFIN=1.
ORNUM=45.
ARB=1.
TINY=2.,30.,50.,10.,-10.
3.
* END OF PHOTO EVALUATION DATA                                         (0
```

## FRAMES 33 THRU 36

```
* EVALUATION OF SITE III P-2B     PHOTOS (DD NO. 5002 )                (4
J20=+.20700000E-03 J30=-.44599999E-04 J40=-.20900000E-04
C21=+.88000000E-05 C22=+.27600000E-04 C31=+.44401383E-04
C32=-.52289916E-06 C33=-.45361714E-5 C41=-.61162580E-5
C42=+.12634707E-04 C43=+.26732488E-05 C44=+.76665007E-06
S21=-.41100000E-04 S22=-.57999998E-05 S31=+.20191421E-04
S32=-.17566824E-05 S33=+.11442012E-05 S41=-.79452936E-05
S42=+.20936164E-05 S43=-.37396944E-05 S44=+.86227480E-06
TRANST=1.,67.,2.,15.,17.,0.,14.440
TRANSF+2=    -387.44480515  -1612.46531677    -669.73191071
TRANSF+5=       1.75626524      -.11619708       -.74921650
BIG=46.,1.,1.,1.,0.,4.,4.,42.683,-0.917,0.
1.,3.,2.
2.12,25.39,1.36
67.,2.,15.,17.,01.,14.4
67.,2.,15.,17.,01.,16.8
67.,2.,15.,17.,01.,19.1
67.,2.,15.,17.,01.,21.4
0.,0.,0.,0.,0.,0.
ORFIN=1.
ORNUM=46.
ARB=1.
TINY=2.,30.,50.,10.,-10.
3.
* END OF PHOTO EVALUATION DATA                                         (0
```

## FRAME 37

```
* EVALUATION OF SITE III S-2      PHOTOS (OD NO. 5002 )          (4
TRANST=1.,67.,2.,15.,20.,48.,52.600
TRANSF+2=    1576.66835022   -889.24599457  -1073.54421997
TRANSF+5=       1.26264407      1.11197914       .07097952
BIG=47.,1.,1.,1.,1.,1.,4.,104.000,-22.315,0.
1.,3.,2.
90.00,0.00,-55.00
67.,2.,15.,20.,49.,52.6
0.,0.,0.,0.,0.,0.
ORFIN=1.
ORNUM=47.
ARB=1.
TINY=2.,90.,110.,-10.,-30.
0.
* END OF PHOTO EVALUATION DATA                                   (0
```

## FRAME 38

```
* EVALUATION OF SITE III S-3      PHOTOS (OD NO. 5002 )          (4
TRANST=1.,67.,2.,15.,23.,57.,43.120
TRANSF+2=    -346.38025665  -1613.72016907   -687.60298157
TRANSF+5=       1.76415578      -.08322059      -.73605366
BIG=48.,1.,1.,1.,0.,1.,4.,38.750,-4.500,0.
1.,3.,2.
-67.44,-10.34,-10.60
67.,2.,15.,23.,58.,43.1
0.,0.,0.,0.,0.,0.
ORFIN=1.
ORNUM=48.
ARB=1.
TINY=2.,30.,50.,10.,-10.
0.
* END OF PHOTO EVALUATION DATA                                   (0
```

## FRAME 39

```
* EVALUATION OF SITE III S-4      PHOTOS (OD NO. 5002 )          (4
TRANST=1.,67.,2.,16.,3.,23.,42.950
TRANSF+2=    -611.80355835  -1584.41140747   -568.76527405
TRANSF+5=       1.70161675      -.29281062      -.81865203
BIG=49.,1.,1.,1.,1.,1.,4.,24.517,0.450,0.
1.,2.,3.
-77.15,-55.00,0.00
67.,2.,16.,03.,24.,46.2
0.,0.,0.,0.,0.,0.
ORFIN=1.
ORNUM=49.
ARB=1.
TINY=2.,10.,30.,10.,-10.
0.
* END OF PHOTO EVALUATION DATA                                   (0
```

## FRAMES 40 THRU 43

```
* EVALUATION OF SITE III P-3      PHOTOS (OD NO. 9002 )                (4
TRANST=1.,67.,2.,16.,6.,50.,3.970
TRANSF+2=    -830.79701233  -1533.33418274    -459.57126617
TRANSF+5=       1.62082763      -.46378553       -.87862334
BIG=50.,1.,0.,1.,0.,4.,4.,20.250,3.333,0.
1.,3.,2.
-34.58,13.52,3.12
67.,2.,16.,06.,51.,04.3
67.,2.,16.,06.,51.,14.9
67.,2.,16.,06.,51.,25.3
67.,2.,16.,06.,51.,35.5
0.,0.,0.,0.,0.,0.
ORFIN=1.
ORNUM=50.
ARB=1.
TINY=2.,10.,30.,10.,-10.
0.
* END OF PHOTO EVALUATION DATA                                         (0
```

## FRAMES 44 THRU 51

```
* EVALUATION OF SITE III P-4      PHOTOS (OD NO. 9002 )                (4
TRANST=1.,67.,2.,16.,10.,21.,18.050
TRANSF+2=    -560.39925385  -1590.57534790    -596.46087646
TRANSF+5=       1.71645822      -.24863587       -.80660269
BIG=51.,1.,1.,1.,0.,8.,4.,27.450,0.617,0.
1.,3.,2.
-13.69,19.48,1.06
67.,2.,16.,10.,22.,18.1
67.,2.,16.,10.,22.,20.3
67.,2.,16.,10.,22.,22.5
67.,2.,16.,10.,22.,24.7
67.,2.,16.,10.,22.,26.9
67.,2.,16.,10.,22.,29.1
67.,2.,16.,10.,22.,31.3
67.,2.,16.,10.,22.,33.5
ORFIN=1.
ORNUM=51.
ARB=1.
TINY=2.,25.,40.,10.,-10.
0.
* END OF PHOTO EVALUATION DATA                                         (0
```

# FRAMES 52 THRU 59

```
* EVALUATION OF SITE III P-5A      PHOTOS (DD NO. 9002 )                    (4
J20=.20700E-3
J30=-.44600E-4
J40=-.20900E-4
C21=.88000E-5
C31=.44401383E-4
C41=-.61162580E-5
C22=.27600E-4
C32=.38898391E-04
C42=.17792065E-04
C33=-.45376295E-05
C43=.11817308E-05
C44=.76665007E-6
S21=-.41100E-4
S31=.20191421E-4
S41=-.79452936E-5
S22=-.58000E-5
S32=-.29789004E-04
S42=.29449849E-04
S33=.13974416E-04
S43=-.24135295E-05
S44=.86227480E-6
TRANST=1.,67.,2.,16.,13.,49.,36.250
TRANSF+2=    -584.61928558  -1586.38061523    -585.33303070
TRANSF+5=       1.70971020      -.26728892       -.81429939
BIG=52.,1.,1.,1.,0.,8.,4.,24.517,0.450,0.
1.,3.,2.
-30.98,13.11,-2.94
67.,2.,16.,13.,50.,37.1
67.,2.,16.,13.,50.,39.3
67.,2.,16.,13.,50.,41.6
67.,2.,16.,13.,50.,43.8
67.,2.,16.,13.,50.,46.0
67.,2.,16.,13.,50.,48.2
67.,2.,16.,13.,50.,50.5
67.,2.,16.,13.,50.,52.7
0.,0.,0.,0.,0.,0.
ORFIN=1.
ORNUM=52.
ARB=1.
TINY=2.,10.,30.,10.,-10.
0.
* END OF PHOTO EVALUATION DATA                                             (0
```

## FRAMES 60 THRU 67

```
* EVALUATION OF SITE III P-5B     PHOTOS (OD NO. 9002 )                (4
TRANST=1.,67.,2.,16.,17.,18.,38.176
TRANSF+2=    -533.87638855  -1593.17958069    -609.50934601
TRANSF+5=       1.72402404      -.22637972       -.79967810
BIG=53.,1.,1.,1.,0.,8.,4.,24.517,0.450,0.
1.,3.,2.
-6.35,21.79,3.17
67.,2.,16.,17.,19.,38.0
67.,2.,16.,17.,19.,40.1
67.,2.,16.,17.,19.,42.4
67.,2.,16.,17.,19.,44.5
67.,2.,16.,17.,19.,46.8
67.,2.,16.,17.,19.,49.0
67.,2.,16.,17.,19.,51.2
67.,2.,16.,17.,19.,53.5
0.,0.,0.,0.,0.,0.
ORFIN=1.
ORNUM=53.
ARB=1.
TINY=2.,10.,30.,10.,-10.
0.
* END OF PHOTO EVALUATION DATA                                         (0
```

## FRAMES 68 THRU 71

```
* EVALUATION OF SITE III P-6      PHOTOS (OD NO. 5003 )                (4
J20=+.20700000E-03 J30=-.44599999E-04 J40=-.20900000E-04
C21=+.88000000E-05 C22=+.27600000E-04 C31=+.41926648E-04
C32=+.50509860E-04 C33=-.72631916E-05 C41=+.19527965E-07
C42=-.63563862E-05 C43=+.26241871E-06 C44=+.47895918E-06
S21=-.41100000E-04 S22=-.57999998E-05 S31=+.22093423E-04
S32=-.35520159E-04 S33=+.19529372E-04 S41=-.66347541E-05
S42=+.65333374E-04 S43=-.34573612E-06 S44=+.74159561E-06
TRANST=1.,67.,2.,16.,20.,46.,50.351
TRANSF+2=    -568.51791382  -1586.00572205    -598.55416870
TRANSF+5=       1.71185860      -.24657623       -.81851087
BIG=54.,1.,0.,1.,0.,4.,4.,21.500,0.333,0.
1.,3.,2.
-24.20,15.80,-1.63
67.,2.,16.,20.,47.,50.7
67.,2.,16.,20.,47.,59.2
67.,2.,16.,20.,48.,07.8
67.,2.,16.,20.,48.,16.3
0.,0.,0.,0.,0.,0.
ORFIN=1.
ORNUM=54.
ARB=1.
TINY=2.,10.,30.,10.,-10.
0.
* END OF PHOTO EVALUATION DATA                                         (0
```

## FRAME 72

```
* EVALUATION OF SITE III S-5      PHOTOS (OD NO. 5003 )                (4
TRANST=1.,67.,2.,17.,0.,16.,48.595
TRANSF+2=    -419.07192612  -1601.52996826   -667.61692047
TRANSF+5=       1.74816611      -.12677327      -.77336195
BIG=55.,1.,1.,1.,0.,1.,4.,24.200,-0.583,0.
1.,2.,3.
3.286,4.350,25.720
67.,2.,17.,00.,17.,48.6
0.,0.,0.,0.,0.,0.
ORFIN=1.
ORNUM=55.
ARB=1.
TINY=2.,10.,30.,10.,-10.
0.
* END OF PHOTO EVALUATION DATA                                         (0
```

## FRAME 73

```
* EVALUATION OF SITE III S-6      PHOTOS (OD NO. 5003 )                (4
TRANST=1.,67.,2.,17.,3.,40.,29.603
TRANSF+2=    -906.20132446  -1507.31066895   -421.12902451
TRANSF+5=       1.58326277      -.51228052      -.91119920
BIG=56.,1.,1.,1.,0.,1.,4.,6.333,7.750,0.
1.,2.,3.
26.83,29.69,21.49
67.,2.,17.,03.,41.,29.6
0.,0.,0.,0.,0.,0.
ORFIN=1.
ORNUM=56.
ARB=1.
TINY=2.,0.,20.,10.,-10.
0.
* END OF PHOTO EVALUATION DATA                                         (0
```

## FRAMES 74 THRU 77

```
* EVALUATION OF SITE III S-7      PHOTOS (OD NO. 5003 )                (4
TRANST=1.,67.,2.,17.,7.,9.,45.650
TRANSF+2=    -835.21302795  -1528.65374756   -460.97014236
TRANSF+5=       1.61496811      -.45475354      -.89677569
BIG=57.,1.,0.,1.,0.,4.,4.,6.833,3.667,0.
1.,3.,2.
-17.448,18.379,10.552
67.,2.,17.,07.,10.,45.6
67.,2.,17.,07.,10.,55.8
67.,2.,17.,07.,11.,05.7
67.,2.,17.,07.,11.,15.6
0.,0.,0.,0.,0.,0.
ORFIN=1.
ORNUM=57.
ARB=1.
TINY=2.,0.,20.,10.,-10.
0.
* END OF PHOTO EVALUATION DATA                                         (0
```

## FRAME 78

```
* EVALUATION OF SITE III S-8      PHOTOS (OD NO. 5003 )                (4
TRANST=1.,67.,2.,17.,10.,45.,28.220
TRANSF+2=     -92.36498451  -1599.10461426    -801.62546539
TRANSF+5=       1.78760372       .13222902       -.66195683
BIG=58.,1.,1.,1.,0.,1.,4.,26.417,-11.333,0.
1.,2.,3.
-71.54,7.60,-17.39
67.,2.,17.,10.,45.,47.5
0.,0.,0.,0.,0.,0.
ORFIN=1.
ORNUM=58.
ARB=1.
TINY=2.,20.,40.,10.,-10.
0.
* END OF PHOTO EVALUATION DATA                                         (0
```

## FRAME 79

```
* EVALUATION OF SITE III S-9      PHOTOS (OD NO. 5003 )                (4
TRANST=1.,67.,2.,17.,14.,11.,15.606
TRANSF+2=    -383.64594269  -1601.93319702    -684.34540558
TRANSF+5=       1.75348502       -.09256252       -.76875503
BIG=59.,1.,1.,1.,0.,1.,4.,17.583,-1.417,0.
1.,3.,1.
-4.699,22.846,-5.691
67.,2.,17.,14.,12.,15.5
0.,0.,0.,0.,0.,0.
ORFIN=1.
ORNUM=59.
ARB=1.
TINY=2.,10.,20.,10.,-10.
0.
* END OF PHOTO EVALUATION DATA                                         (0
```

# FRAMES 80 THRU 83

```
* EVALUATION OF SITE III S-10      PHOTOS (OD NO. 5356 )                    (4
C21=.8800E-5
S22=-.57999998E-5
J20=.20700E-3
C31=.41926648E-4
J30=-.44599999E-4
C41=.19527965E-7
C44=.47895918E-6
J40=-.20900E-4
C22=.27600E-4
S21=-.41100E-4
S31=.22093423E-4
S41=-.66347540E-5
S44=.74159561E-6
C32=.38584805E-04
C42=.11732509E-06
C33=-.70656130E-06
C43=.19537473E-05
S32=-.37842654E-04
S42=.82584499E-04
S33=.23256241E-04
S43=.13531972E-06
TRANST=1.,67.,2.,17.,21.,8.,2.918
TRANSF+2=    -412.15293121  -1600.46241760    -668.82230377
TRANSF+5=       1.75195852      -.12010599       -.77023108
BIG=61.,1.,0.,1.,0.,4.,4.,13.500,-1.500,0.
1.,3.,2.
-12.68,20.21,-2.06
67.,2.,17.,21.,9.,03.7
67.,2.,17.,21.,9.,11.6
67.,2.,17.,21.,9.,19.6
67.,2.,17.,21.,9.,27.7
0.,0.,0.,0.,0.,0.
ORFIN=1.
ORNUM=61.
ARB=1.
TINY=2.,0.,20.,10.,-10.
0.
* END OF PHOTO EVALUATION DATA                                             (0
```

## FRAME 84

```
* EVALUATION OF SITE III S-11     PHOTOS (OD NO. 5158A)                (4
TRANST=1.,67.,2.,18.,0.,34.,14.240
TRANSF+2=    -653.57314301  -1570.17150879   -554.71780396
TRANSF+5=       1.68861690      -.31304278      -.84219734
J20=.20700E-3
J30=-.44600E-4
J40=-.20900E-4
C21=-.88000E-5
C31=.43500E-4
C41=-.51000E-5
C22=.27600E-4
C32=.22677332E-04
C42=-.21251398E-06
C33=.40613760E-05
C43=.65354542E-06
C44=.94000E-7
S21=-.41100E-4
S31=.17000E-4
S41=-.10200E-4
S22=-.58000E-5
S32=-.28164808E-04
S42=.50315637E-04
S33=.15484455E-04
S43=.48842287E-06
S44=.17000E-6
BIG=62.,1.,1.,0.,1.,1.,4.,-1.333,0.917,0.
1.,2.,3.
-66.37,-54.37,0.00
67.,2.,18.,0.,35.,14.3
0.,0.,0.,0.,0.,0.
ORFIN=1.
ORNUM=62.
ARB=1.
TINY=2.,-10.,10.,10.,-10.
0.
* END OF PHOTO EVALUATION DATA                                         (0
```

## FRAME 85

```
* EVALUATION OF SITE III S-13     PHOTOS (OD NO. 5158A)                (4
TRANST=1.,67.,2.,18.,4.,2.,4.800
TRANSF+2=    -721.39674377  -1556.39424133   -520.03010559
TRANSF+5=       1.66451901      -.36574132      -.86216884
BIG=63.,1.,1.,1.,0.,1.,4.,-0.500,5.000,0.
1.,2.,3.
31.71,27.76,24.41
67.,2.,18.,4.,3.,04.9
0.,0.,0.,0.,0.,0.
ORFIN=1.
ORNUM=63.
ARB=1.
TINY=2.,-10.,10.,10.,-10.
0.
* END OF PHOTO EVALUATION DATA                                         (0
```

# FRAMES 86 THRU 93

```
* EVALUATION OF SITE III P-7A      PHOTOS (OD NO. 5260 )                    14
TRANST=1.,67.,2.,18.,7.,31.,10.360
TRANSF+2=    -664.67063141  -1567.76960754    -549.20536041
TRANSF+5=       1.68823887      -.32480891       -.83794269
J20=.20700E-3
J30=-.44600E-4
J40=-.20900E-4
C21=.88000E-5
C31=.43500E-4
C41=-.51000E-5
C22=.27600E-4
C44=.94000E-7
C32=.45068396E-5
C33=.72266094E-5
S21=-.41100E-4
S31=.17000E-4
S41=-.10200E-4
S22=-.58000E-5
S44=.17000E-6
S32=-.33095071E-4
S33=.11249993E-4
C42=.67605709E-05
C43=.36245354E-05
S42=.31410075E-04
S43=.81355567E-06
BIG=64.,1.,1.,1.,0.,8.,4.,-1.283,1.033,0.
1.,3.,2.
-40.08,11.16,-1.03
67.,2.,18.,7.,32.,9.5
67.,2.,18.,7.,32.,11.9
67.,2.,18.,7.,32.,14.2
67.,2.,18.,7.,32.,16.4
67.,2.,18.,7.,32.,18.9
67.,2.,18.,7.,32.,20.8
67.,2.,18.,7.,32.,23.2
67.,2.,18.,7.,32.,25.4
0.,0.,0.,0.,0.,0.
ORFIN=1.
ORNUM=64.
ARB=1.
TINY=2.,-10.,10.,10.,-10.
0.
* END OF PHOTO EVALUATION DATA                                             10
```

## FRAMES 94 THRU 101

```
* EVALUATION OF SITE III P-7B     PHOTOS (OD NO. 5260 )                (4
TRANST=1.,67.,2.,18.,11.,0.,9.354
TRANSF+2=    -616.93367004  -1576.33316040   -572.54058075
TRANSF+5=       1.70364019      -.28574941      -.82501997
BIG=65.,1.,1.,1.,0.,8.,4.,-1.333,0.917,0.
1.,3.,2.
-27.98,15.49,0.77
67.,2.,18.,11.,1.,10.4
67.,2.,18.,11.,1.,12.4
67.,2.,18.,11.,1.,14.4
67.,2.,18.,11.,1.,16.5
67.,2.,18.,11.,1.,18.5
67.,2.,18.,11.,1.,20.5
67.,2.,18.,11.,1.,22.6
67.,2.,18.,11.,1.,24.6
0.,0.,0.,0.,0.,0.
ORFIN=1.
ORNUM=65.
ARB=1.
TINY=2.,-10.,10.,10.,-10.
0.
* END OF PHOTO EVALUATION DATA                                         (0
```

## FRAME 102

```
* EVALUATION OF SITE III S-14     PHOTOS (OD NO. 5260 )                (4
TRANST=1.,67.,2.,18.,14.,26.,55.702
TRANSF+2=    -791.75833130  -1539.30821228   -483.69470596
TRANSF+5=       1.64072192      -.42352416      -.87276268
BIG=66.,1.,1.,1.,0.,1.,4.,-9.000,5.000,0.
1.,2.,3.
20.003,10.495,22.349
67.,2.,18.,14.,28.,2.6
0.,0.,0.,0.,0.,0.
ORFIN=1.
ORNUM=66.
ARB=1.
TINY=2.,-20.,0.,10.,-10.
0.
* END OF PHOTO EVALUATION DATA                                         (0
```

## FRAMES 103 THRU 106

```
* EVALUATION OF SITE III S-15      PHOTOS (OD NO. 5364 )                (4
J20=.20700E-3
J30=-.44600E-4
J40=-.20900E-4
C21=.88000E-5
C31=.43500E-4
C41=-.51000E-5
C22=.27600E-4
C32=-.51448180E-06
C42=.50015259E-05
C33=.59640215E-05
C43=.16142341E-05
C44=.94000E-7
S21=-.41100E-4
S31=.17000E-4
S41=-.10200E-4
S22=-.58000E-5
S32=-.15700888E-04
S42=.52397687E-05
S33=.10746671E-05
S43=-.11446838E-05
S44=.17000E-6
TRANST=1.,67.,2.,18.,17.,56.,59.943
TRANSF+2=    -635.63015747  -1573.08454895    -563.67869568
TRANSF+5=       1.69730242      -.29800038       -.83204082
BIG=67.,1.,0.,1.,0.,4.,4.,-5.500,0.667,0.
1.,3.,2.
-35.74,12.92,-1.14
67.,2.,18.,17.,58.,0.7
67.,2.,18.,17.,58.,9.2
67.,2.,18.,17.,58.,17.7
67.,2.,18.,17.,58.,26.2
0.,0.,0.,0.,0.,0.
ORFIN=1.
ORNUM=67.
ARB=1.
TINY=2.,-20.,0.,10.,-10.
0.
* END OF PHOTO EVALUATION DATA                                          (0
```

## FRAME 107

```
* EVALUATION OF SITE III S-16      PHOTOS (OD NO. 5364 )                (4
TRANST=1.,67.,2.,19.,0.,55.,15.156
TRANSF+2=    -509.01943207  -1591.44880676    -623.91366577
TRANSF+5=       1.73391311      -.19588229       -.79387329
BIG=69.,1.,1.,1.,0.,1.,4.,-5.667,-0.333,0.
1.,3.,2.
-22.18,17.42,-0.50
67.,2.,19.,0.,56.,16.0
0.,0.,0.,0.,0.,0.
ORFIN=1.
ORNUM=69.
ARB=1.
TINY=2.,-20.,0.,10.,-10.
0.
* END OF PHOTO EVALUATION DATA                                          (0
```

## FRAMES 108 THRU 111

```
* EVALUATION OF SITE III S-17     PHOTOS (OD NO. 5364 )                (4
TRANST=1.,67.,2.,19.,4.,26.,53.721
TRANSF+2=    -177.26570320  -1603.76509094   -762.84246826
TRANSF+5=       1.78995273       .06526759      -.68051633
BIG=70.,1.,0.,1.,0.,4.,4.,4.083,-4.750,0.
1.,3.,2.
-16.50,19.53,-9.44
67.,2.,19.,4.,27.,53.7
67.,2.,19.,4.,28.,2.6
67.,2.,19.,4.,28.,11.7
67.,2.,19.,4.,28.,20.9
0.,0.,0.,0.,0.,0.
ORFIN=1.
ORNUM=70.
ARB=1.
TINY=2.,-10.,10.,10.,-10.
0.
* END OF PHOTO EVALUATION DATA                                         (0
```

## FRAMES 112 THRU 115

```
* EVALUATION OF SITE III S-18     PHOTOS (OD NO. 5272 )                (4
J20=2.07E-4
J30=-.446E-4
J40=-.209E-4
C21=.088E-4
C22=.276E-4
C31=.435E-4
C32=.2773079E-5
C33=.5040435E-5
C41=-.051E-4
C42=.6392428E-5
C43=.2086578E-5
C44=.00094E-4
S21=-.411E-4
S22=-.058E-4
S31=.170E-4
S32=-.1041167E-4
S33=.3676417E-5
S41=-.102E-4
S42=.1298042E-4
S43=-.1990614E-6
S44=.0017E-4
TRANST=1.,67.,2.,19.,7.,52.,44.600
TRANSF+2=    -460.64815903  -1595.99337769   -647.11527252
TRANSF+5=       1.74678116      -.15709329      -.77556366
BIG=71.,1.,1.,1.,0.,4.,4.,-8.033,-1.833,0.
1.,2.,3.
-49.25,-7.07,4.37
67.,2.,19.,7.,53.,44.6
67.,2.,19.,7.,53.,47.0
67.,2.,19.,7.,53.,49.4
67.,2.,19.,7.,53.,51.8
0.,0.,0.,0.,0.,0.
ORFIN=1.
ORNUM=71.
ARB=1.
TINY=2.,-20.,0.,10.,-10.
0.
* END OF PHOTO EVALUATION DATA                                         (0
```

## FRAMES 116 THRU 119

```
* EVALUATION OF SITE III S-19     PHOTOS (OD NO. 5272 )                (4
TRANST=1.,67.,2.,19.,11.,22.,49.230
TRANSF+2=    -294.72331238  -1604.64512634    -717.77941132
TRANSF+5=       1.77755424      -.02577996       -.71977281
BIG=72.,1.,0.,1.,0.,4.,4.,-3.667,-3.333,0.
1.,3.,2.
-22.67,16.20,-7.42
67.,2.,19.,11.,23.,48.9
67.,2.,19.,11.,23.,57.1
67.,2.,19.,11.,24.,05.4
67.,2.,19.,11.,24.,13.9
0.,0.,0.,0.,0.,0.
ORFIN=1.
ORNUM=72.
ARB=1.
TINY=2.,-10.,10.,10.,-10.
0.
* END OF PHOTO EVALUATION DATA                                         (0
```

## FRAME 120

```
* EVALUATION OF SITE III S-21     PHOTOS (OD NO. 5272 )                (4
TRANST=1.,67.,2.,19.,18.,17.,34.500
TRANSF+2=    -533.08495331  -1588.67533875    -615.18290710
TRANSF+5=       1.72869472      -.21203326       -.79797252
BIG=74.,1.,1.,1.,1.,1.,4.,-20.000,-0.500,0.
1.,2.,3.
-69.07,-55.00,0.00
67.,2.,19.,18.,18.,34.6
0.,0.,0.,0.,0.,0.
ORFIN=1.
ORNUM=74.
ARB=1.
TINY=2.,-30.,-10.,10.,-10.
0.
* END OF PHOTO EVALUATION DATA                                         (0
```

## FRAME 121

```
* EVALUATION OF SITE III S-21.5   PHOTOS (OD NO. 5272 )                (4
TRANST=1.,67.,2.,19.,19.,21.,0.180
TRANSF+2=    2431.46984863   2046.56578064      97.93141842
TRANSF+5=       -.34602832       .88477750        .59818263
BIG=74.,1.,1.,1.,1.,1.,4.,126.730,-24.14,0.
1.,3.,2.
169.40,0.00,0.00
67.,2.,19.,19.,22.,0.3
0.,0.,0.,0.,0.,0.
ORFIN=1.
ORNUM=74.
ARB=1.
TINY=2.,120.,140.,-10.,-30.
0.
* END OF PHOTO EVALUATION DATA                                         (0
```

## FRAME 122

```
* EVALUATION OF SITE III S-22      PHOTOS (OD NO. 5176 )                (4
J20=.20700E-3
J30=-.44600E-4
J40=-.20900E-4
C21=.88000E-5
C31=.43500E-4
C41=-.31759905E-6
C22=.27600E-4
C32=.40[illegible]E-04
C42=.14688171E-04
C33=.83853281E-05
C43=.54267602E-06
C44=.94000E-7
S21=-.41100E-4
S31=.17000E-4
S41=-.11519243E-4
S22=-.58000E-5
S32=.71463151E-05
S42=.38305747E-04
S33=.13598429E-04
S43=-.19795242E-05
S44=.17000E-6
TRANST=1.,67.,2.,19.,21.,44.,56.347
TRANSF+2=    -651.80320740  -1569.32319641    -563.09014130
TRANSF+5=       1.69518612      -.30601447       -.82886223
BIG=75.,1.,1.,1.,0.,1.,4.,-22.083,1.167,0.
1.,3.,2.
-34.20,13.72,1.71
67.,2.,19.,21.,45.,57.0
0.,0.,0.,0.,0.,0.
ORFIN=1.
ORNUM=75.
ARB=1.
TINY=2.,-30.,-10.,10.,-10.
0.
* END OF PHOTO EVALUATION DATA                                          (0
```

## FRAME 123

```
* EVALUATION OF SITE III S-20      PHOTOS (OD NO. 5176 )                (4
TRANST=1.,67.,2.,20.,1.,12.,17.120
TRANSF+2=    -767.75812531  -1545.36746216    -504.76486969
TRANSF+5=       1.65302245      -.39659899       -.86079772
BIG=76.,1.,1.,1.,0.,1.,4.,-27.750,7.667,0.
1.,3.,2.
51.52,17.49,14.95
67.,2.,20.,1.,13.,17.5
0.,0.,0.,0.,0.,0.
ORFIN=1.
ORNUM=76.
ARB=1.
TINY=2.,-40.,-20.,10.,-10.
0.
* END OF PHOTO EVALUATION DATA                                          (0
```

# FRAMES 124 THRU 131

```
* EVALUATION OF SITE III P-8      PHOTOS (OD NO. 5278 )                    14
J20=.20700E-3
J30=-.44600E-4
J40=-.20900E-4
C21=.88000E-5
C31=.43500E-4
C41=-.31759905E-6
C22=.27600E-4
C32=.20429385E-4
C42=.14136118E-4
C33=.74524648E-5
C43=.10956488E-5
C44=.94000E-7
S21=-.41100E-4
S31=.17000E-4
S41=-.11519243E-4
S22=-.58000E-5
S32=.37159682E-5
S42=.24274504E-4
S33=.82990066E-5
S43=-.18247556E-5
S44=.17000E-6
TRANST=1.,67.,2.,20.,4.,43.,32.850
TRANSF+2=    -484.48174667  -1594.89213562    -637.57657623
TRANSF+5=       1.74052157      -.17137329       -.78257973
BIG=77.,1.,1.,1.,0.,8.,4.,-19.833,-0.833,0.
1.,3.,2.
-16.80,18.76,1.25
67.,2.,20.,4.,44.,32.3
67.,2.,20.,4.,44.,34.3
67.,2.,20.,4.,44.,36.3
67.,2.,20.,4.,44.,38.3
67.,2.,20.,4.,44.,40.4
67.,2.,20.,4.,44.,42.4
67.,2.,20.,4.,44.,44.4
67.,2.,20.,4.,44.,46.4
0.,0.,0.,0.,0.,0.
ORFIN=1.
ORNUM=77.
ARB=1.
TINY=2.,-30.,-10.,10.,-10.
0.
* END OF PHOTO EVALUATION DATA                                             10
```

## FRAMES 132 THRU 135

```
* EVALUATION OF SITE III S-23     PHOTOS (OD NO. 5278 )                    (4
TRANST=1.,67.,2.,20.,8.,13.,19.060
TRANSF+2=    -350.36297226  -1604.12763977   -696.18396759
TRANSF+5=       1.76778616      -.06487720      -.73863933
BIG=78.,1.,0.,1.,0.,4.,4.,-17.230,-3.520,0.
1.,3.,2.
-47.07,4.16,-9.71
67.,2.,20.,8.,14.,20.3
67.,2.,20.,8.,14.,29.7
67.,2.,20.,8.,14.,38.6
67.,2.,20.,8.,14.,48.6
0.,0.,0.,0.,0.,0.
ORFIN=1.
ORNUM=78.
ARB=1.
TINY=2.,-30.,-10.,10.,-10.
0.
* END OF PHOTO EVALUATION DATA                                             (0
```

## FRAME 136

```
* EVALUATION OF SITE III S-24     PHOTOS (OD NO. 5278 )                    (4
TRANST=1.,67.,2.,20.,11.,41.,42.260
TRANSF+2=    -361.89860535  -1603.86599731   -691.81239319
TRANSF+5=       1.76544748      -.07307647      -.74267305
BIG=79.,1.,1.,0.,1.,1.,4.,-23.250,-3.083,0.
1.,2.,3.
-78.42,-52.76,0.00
67.,2.,20.,11.,42.,42.4
0.,0.,0.,0.,0.,0.
ORFIN=1.
ORNUM=79.
ARB=1.
TINY=2.,-30.,-10.,10.,-10.
0.
* END OF PHOTO EVALUATION DATA                                             (0
```

# FRAMES 137 THRU 144

```
* EVALUATION OF SITE III P-9A      PHOTOS (OD NO. 5380 )                (4
J20=.20700E-3
J30=-.44600E-4
J40=-.20900E-4
C21=-.58136740E-5
C31=.52481636E-4
C41=.34250515E-4
C22=.27600E-4
C32=.16344193E-04
C42=.92250519E-05
C33=.32553886E-05
C43=.74768747E-06
C44=.94000E-7
S21=-.34878038E-4
S31=.32582130E-4
S41=-.29745093E-4
S22=-.58000E-5
S32=.27451060E-05
S42=.13089795E-04
S33=.45984062E-05
S43=-.13463550E-05
S44=.17000E-6
TRANST=1.,67.,2.,20.,15.,9.,51.140
TRANSF+2=    -398.47198868  -1601.84150696    -677.74034119
TRANSF+5=       1.75978531       -.10268006       -.75133470
BIG=80.,1.,1.,1.,0.,8.,4.,-23.183,-3.150,0.
1.,3.,2.
-51.58,2.95,-7.82
67.,2.,20.,15.,10.,50.7
67.,2.,20.,15.,10.,53.3
67.,2.,20.,15.,10.,56.0
67.,2.,20.,15.,10.,58.7
67.,2.,20.,15.,11.,1.3
67.,2.,20.,15.,11.,4.0
67.,2.,20.,15.,11.,6.6
67.,2.,20.,15.,11.,9.3
0.,0.,0.,0.,0.,0.
ORFIN=1.
ORNUM=80.
ARB=1.
TINY=2.,-30.,-10.,10.,-10.
0.
* END OF PHOTO EVALUATION DATA                                         (5
```

## FRAMES 145 THRU 152

```
* EVALUATION OF SITE III P-9B     PHOTOS (OD NO. 5380 )                (4
TRANST=1.,67.,2.,20.,18.,38.,51.680
TRANSF+2=    -343.51581573  -1604.56056213    -701.42070007
TRANSF+5=       1.76930772      -.05861120       -.73313765
BIG=81.,1.,1.,1.,0.,8.,4.,-23.183,-3.150,0.
1.,3.,2.
-24.71,15.57,-4.75
67.,2.,20.,18.,39.,52.1
67.,2.,20.,18.,39.,54.3
67.,2.,20.,18.,39.,56.4
67.,2.,20.,18.,39.,58.6
67.,2.,20.,18.,40.,0.7
67.,2.,20.,18.,40.,2.9
67.,2.,20.,18.,40.,5.0
67.,2.,20.,18.,40.,7.2
0.,0.,0.,0.,0.,0.
ORFIN=1.
ORNUM=81.
ARB=1.
TINY=2.,-30.,-10.,10.,-10.
0.
* END OF PHOTO EVALUATION DATA                                         (0
```

## FRAMES 153 THRU 160

```
* EVALUATION OF SITE III P-9C     PHOTOS (OD NO. 5380 )                (4
TRANST=1.,67.,2.,20.,22.,7.,46.479
TRANSF+2=    -298.36980438  -1605.78318787    -720.48342133
TRANSF+5=       1.77590410      -.02237309       -.71782504
BIG=82.,1.,1.,1.,0.,8.,4.,-23.183,-3.150,0.
1.,3.,2.
-14.42,19.74,-3.02
67.,2.,20.,22.,8.,46.0
67.,2.,20.,22.,8.,48.2
67.,2.,20.,22.,8.,50.4
67.,2.,20.,22.,8.,52.6
67.,2.,20.,22.,8.,54.8
67.,2.,20.,22.,8.,57.0
67.,2.,20.,22.,8.,59.2
67.,2.,20.,22.,9.,1.4
0.,0.,0.,0.,0.,0.
ORFIN=1.
ORNUM=82.
ARB=1.
TINY=2.,-30.,-10.,10.,-10.
0.
* END OF PHOTO EVALUATION DATA                                         (0
```

## FRAME 161

```
* EVALUATION OF SITE III S-25      PHOTOS (OD NO. 5382 )                (4
J20=.20700E-3
J30=-.44600E-4
J40=-.20900E-4
C21=-.58136740E-5
C31=.52481636E-4
C41=.34250515E-4
C22=.27600E-4
C32=.24106389E-04
C42=.33319642E-04
C33=.11905628E-04
C43=.10989669E-05
C44=.94000E-7
S21=-.34878038E-4
S31=.32582130E-4
S41=-.29745093E-4
S22=-.58000E-5
S32=-.11154255E-04
S42=.22100986E-04
S33=.29677094E-05
S43=-.89975659E-06
S44=.17000E-6
TRANST=1.,67.,2.,21.,1.,32.,37.834
TRANSF+2=    -677.31280518  -1566.73995972   -555.31164551
TRANSF+5=       1.68738960      -.32208581      -.82974669
BIG=83.,1.,1.,0.,1.,1.,4.,-42.000,1.750,0.
1.,2.,3.
-20.73,-54.46,0.00
67.,2.,21.,1.,33.,37.9
0.,0.,0.,0.,0.,0.
ORFIN=1.
ORNUM=83.
ARB=1.
TINY=2.,-50.,-30.,10.,-10.
0.
* END OF PHOTO EVALUATION DATA                                          (0
```

## FRAME 162

```
* EVALUATION OF SITE III S-26      PHOTOS (OD NO. 5382 )                (4
TRANST=1.,67.,2.,21.,5.,1.,1.300
TRANSF+2=    -686.38710785  -1565.45512390   -551.24674225
TRANSF+5=       1.68359283      -.32785649      -.83322929
BIG=84.,1.,1.,1.,0.,1.,4.,-37.833,8.167,0.
1.,3.,1.
-8.27,38.93,59.50
67.,2.,21.,5.,2.,1.4
0.,0.,0.,0.,0.,0.
ORFIN=1.
ORNUM=84.
ARB=1.
TINY=2.,-50.,-30.,10.,-10.
0.
* END OF PHOTO EVALUATION DATA                                          (0
```

## FRAMES 163 THRU 170

```
* EVALUATION OF SITE III P-10      PHOTOS (OD NO. 5286 )                    (4
J20=.20700E-3
J30=-.44600E-4
J40=-.20900E-4
C21=-.58136740E-5
C31=.52481636E-4
C41=.34250515E-4
C22=.27600E-4
C32=.90906391E-04
C42=.20553778E-04
C33=.19193247E-04
C43=.52334695E-06
C44=.94000E-7
S21=-.34878038E-4
S31=.32582130E-4
S41=-.29745093E-4
S22=-.58000E-5
S32=.28337647E-05
S42=.49990270E-04
S33=.17400858E-04
S43=.25007857E-6
S44=.17000E-6
TRANST=1.,67.,2.,21.,11.,58.,21.940
TRANSF+2=    -645.77718353  -1574.53627014    -570.15912628
TRANSF+5=       1.69536205      -.29371602      -.82420004
BIG=86.,1.,1.,1.,0.,8.,4.,-42.000,1.750,0.
1.,3.,2.
1.92,22.15,14.01
67.,2.,21.,11.,59.,21.6
67.,2.,21.,11.,59.,24.1
67.,2.,21.,11.,59.,26.5
67.,2.,21.,11.,59.,29.0
67.,2.,21.,11.,59.,31.4
67.,2.,21.,11.,59.,33.8
67.,2.,21.,11.,59.,36.2
67.,2.,21.,11.,59.,38.7
0.,0.,0.,0.,0.,0.
ORFIN=1.
ORNUM=86.
ARB=1.
TINY=2.,-50.,-30.,10.,-10.
0.
* END OF PHOTO EVALUATION DATA                                             (0
```

## FRAME 171

```
* EVALUATION OF SITE III S-27      PHOTOS (OD NO. 5286 )                    (4
TRANST=1.,67.,2.,21.,15.,30.,2.350
TRANSF+2=    -311.65577316  -1606.23161316    -719.21920013
TRANSF+5=       1.77355230      -.03036335      -.71863605
BIG=87.,1.,1.,1.,1.,1.,4.,-37.167,-3.500,0.
1.,2.,3.
-71.48,-55.00,0.00
67.,2.,21.,15.,31.,2.4
0.,0.,0.,0.,0.,0.
ORFIN=1.
ORNUM=87.
ARB=1.
TINY=2.,-50.,-30.,10.,-10.
0.
* END OF PHOTO EVALUATION DATA                                             (0
```

## FRAME 172

```
* EVALUATION OF SITE III S-28      PHOTOS (OD NO. 5286 )                (4
TRANST=1.,67.,2.,21.,18.,57.,12.524
TRANSF+2=    -448.99858856  -1600.04649353    -661.76673889
TRANSF+5=       1.74745953      -.13666897       -.76552060
BIG=88.,1.,1.,1.,1.,1.,4.,-43.917,-2.333,0.
1.,2.,3.
-73.54,-53.46,0.00
67.,2.,21.,18.,58.,12.6
0.,0.,0.,0.,0.,0.
ORFIN=1.
ORNUM=88.
ARB=1.
TINY=2.,-50.,-30.,10.,-10.
0.
* END OF PHOTO EVALUATION DATA                                          (0
```

## FRAMES 173 THRU 180

```
* EVALUATION OF SITE III P-11      PHOTOS (OD NO. 5192 )                (4
J20=.2070D0E-3
J30=-.44600E-4
J40=-.20900E-4
C21=-.58136740E-5
C31=.52481636E-4
C41=.34250515E-4
C22=.27600E-4
C32=.54075254E-04
C42=.53467289E-5
C33=.11607367E-04
C43=.10979795E-05
C44=.94000E-7
S21=-.34878038E-4
S31=.32582130E-4
S41=-.29745093E-4
S22=-.58000E-5
S32=-.71702518E-5
S42=.19621149E-04
S33=.64304117E-05
S43=-.12709338E-06
S44=.17000E-6
TRANST=1.,67.,2.,21.,22.,26.,59.040
TRANSF+2=    -310.02682114  -1604.79161072    -725.60034180
TRANSF+5=       1.77645445      -.03080523       -.70916101
BIG=89.,1.,1.,1.,0.,8.,4.,-36.933,-3.283,0.
1.,3.,2.
-19.36,17.80,-3.35
67.,2.,21.,22.,27.,58.9
67.,2.,21.,22.,28.,1.2
67.,2.,21.,22.,28.,3.6
67.,2.,21.,22.,28.,5.9
67.,2.,21.,22.,28.,8.2
67.,2.,21.,22.,28.,10.7
67.,2.,21.,22.,28.,13.0
67.,2.,21.,22.,28.,15.3
0.,0.,0.,0.,0.,0.
ORFIN=1.
ORNUM=89.
ARB=1.
TINY=2.,-50.,-30.,10.,-10.
0.
* END OF PHOTO EVALUATION DATA                                          (0
```

## FRAMES 181 THRU 184

```
* EVALUATION OF SITE III P-12B.2  PHOTOS (OD NO. 5192 )                (4
TRANST=1.,67.,2.,22.,1.,54.,15.215
TRANSF+2=    -435.69020081  -1599.45143127    -674.42449951
TRANSF+5=       1.75323966      -.12784638      -.75175072
BIG=90.,1.,1.,1.,0.,4.,4.,-43.867,-2.383,0.
1.,3.,2.
-34.20,12.43,-3.07
67.,2.,22.,1.,55.,14.2
67.,2.,22.,1.,55.,16.6
67.,2.,22.,1.,55.,19.0
67.,2.,22.,1.,55.,21.4
0.,0.,0.,0.,0.,0.
ORFIN=1.
ORNUM=90.
ARB=1.
TINY=2.,-50.,-30.,10.,-10.
0.
* END OF PHOTO EVALUATION DATA                                         (0
```

## FRAMES 185 THRU 200

```
* EVALUATION OF SITE III P-12A    PHOTOS (OD NO. 5192 )                (4
TRANST=1.,67.,2.,22.,5.,22.,52.337
TRANSF+2=    -418.38417816  -1600.93478394    -682.64073944
TRANSF+5=       1.75642335      -.11362788      -.74594653
BIG=91.,1.,1.,1.,0.,16.,4.,-43.867,-2.383,0.
1.,3.,2.
-28.08,14.68,-2.69
67.,2.,22.,5.,23.,53.1
67.,2.,22.,5.,23.,55.5
67.,2.,22.,5.,23.,57.9
67.,2.,22.,5.,24.,0.3
67.,2.,22.,5.,24.,2.6
67.,2.,22.,5.,24.,5.0
67.,2.,22.,5.,24.,7.4
67.,2.,22.,5.,24.,9.8
67.,2.,22.,5.,24.,12.2
67.,2.,22.,5.,24.,14.6
67.,2.,22.,5.,24.,17.0
67.,2.,22.,5.,24.,19.4
67.,2.,22.,5.,24.,21.7
67.,2.,22.,5.,24.,24.1
67.,2.,22.,5.,24.,26.5
67.,2.,22.,5.,24.,28.9
0.,0.,0.,0.,0.,0.
ORFIN=1.
ORNUM=91.
ARB=1.
TINY=2.,-50.,-30.,10.,-10.
0.
* END OF PHOTO EVALUATION DATA                                         (0
```

# FRAMES 201 THRU 204

```
* EVALUATION OF SITE III P-12B.1  PHOTOS (OD NO. 5294 )                (4
J20=.20790E-3
J30=-.44600E-4
J40=-.20900E-4
C21=-.58136740E-5
C31=.52481636E-4
C41=.34250515E-4
C22=.27600E-4
C32=.10872631E-3
C42=-.40126623E-05
C33=.27555852E-04
C43=.14856444E-05
C44=.94000E-7
S21=-.34878038E-4
S31=.32582130E-4
S41=-.29745093E-4
S22=-.58000E-5
S32=-.19824685E-4
S42=.54808971E-4
S33=.14896148E-04
S43=.11911132E-05
S44=.17000E-6
TRANST=1.,67.,2.,22.,8.,52.,12.130
TRANSF+2=    -324.82422256  -1608.31205750    -715.14865875
TRANSF+5=       1.76902139      -.03809330       -.72375981
BIG=92.,1.,1.,1.,0.,4.,4.,-43.867,-2.383,0.
1.,3.,2.
-20.38,17.60,-2.48
67.,2.,22.,8.,53.,12.4
67.,2.,22.,8.,53.,14.7
67.,2.,22.,8.,53.,17.1
67.,2.,22.,8.,53.,19.5
0.,0.,0.,0.,0.,0.
ORFIN=1.
ORNUM=92.
ARB=1.
TINY=2.,-50.,-30.,10.,-10.
0.
* END OF PHOTO EVALUATION DATA                                         (0
```

## FRAMES 205 THRU 212

```
* EVALUATION OF SITE III P-12C     PHOTOS (OD NO. 5294 )                (4
TRANST=1.,67.,2.,22.,12.,20.,43.150
TRANSF+2=    -317.19237518  -1608.88363647   -718.89666748
TRANSF+5=       1.76991507      -.03185075      -.72047747
BIG=93.,1.,1.,1.,0.,8.,4.,-43.867,-2.383,0.
1.,3.,2.
15.47,26.94,11.26
67.,2.,22.,12.,21.,42.8
67.,2.,22.,12.,21.,45.1
67.,2.,22.,12.,21.,47.9
67.,2.,22.,12.,21.,51.7
67.,2.,22.,12.,21.,53.6
67.,2.,22.,12.,21.,56.4
67.,2.,22.,12.,21.,59.2
67.,2.,22.,12.,22.,2.1
0.,0.,0.,0.,0.,0.
ORFIN=1.
ORNUM=93.
ARB=1.
TINY=2.,-50.,-30.,10.,-10.
0.
* END OF PHOTO EVALUATION DATA                                          (0
```

## FRAME 213

```
* EVALUATION OF SITE III S-29      PHOTOS (OD NO. 5294 )                (4
TRANST=1.,67.,2.,22.,15.,45.,56.355
TRANSF+2=    -652.69973755  -1577.55247498   -569.58364868
TRANSF+5=       1.68984477      -.29424272      -.82587898
BIG=94.,1.,1.,1.,0.,1.,4.,-60.550,-5.000,0.
1.,3.,2.
-80.01,-2.49,-1.23
67.,2.,22.,15.,46.,56.5
0.,0.,0.,0.,0.,0.
ORFIN=1.
ORNUM=94.
ARB=1.
TINY=2.,-70.,-50.,10.,-10.
0.
* END OF PHOTO EVALUATION DATA                                          (0
```

## FRAME 214

```
* EVALUATION OF SITE III S-30      PHOTOS (OD NO. 9004 )                (4
J20=.20700E-3
J30=-.44600E-4
J40=-.20900E-4
C21=-.58136740E-5
C31=+.21665922E-03
C41=.34250515E-4
C22=.27600E-4
C32=-.12943621E-05
C42=+.17681623E-04
C33=+.61292174E-05
C43=+.28386671E-05
C44=.94000E-7
S21=-.34878038E-4
S31=+.49478770E-04
S41=-.29745093E-4
S22=-.58000E-5
S32=-.60587277E-04
S42=+.61606663E-05
S33=-.13088991E-04
S43=+.11857377E-05
S44=.17000E-6
TRANST=1.,67.,2.,22.,22.,42.,4.111
TRANSF+2=    -729.54972839  -1559.94061279    -542.55095673
TRANSF+5=       1.66652925       -.35358474       -.83929019
BIG=96.,1.,1.,1.,1.,1.,4.,-64.583,7.000,0.
1.,3.,2.
51.37,16.11,15.80
67.,2.,22.,22.,43.,4.2
0.,0.,0.,0.,0.,0.
ORFIN=1.
ORNUM=96.
ARB=1.
TINY=2.,-70.,-50.,10.,-10.
0.
* END OF PHOTO EVALUATION DATA                                          (0
```

## FRAME 215

```
* EVALUATION OF SITE III S-31      PHOTOS (OD NO. 9004 )                (4
TRANST=1.,67.,2.,23.,2.,10.,24.090
TRANSF+2=    -739.40658569  -1558.31607056    -538.03395844
TRANSF+5=       1.66248289       -.36065151       -.84204356
BIG=97.,1.,1.,1.,0.,1.,4.,-67.000,1.833,0.
1.,3.,2.
-15.65,18.96,12.70
67.,2.,23.,2.,11.,23.9
0.,0.,0.,0.,0.,0.
ORFIN=1.
ORNUM=97.
ARB=1.
TINY=2.,-80.,-60.,10.,-10.
0.
* END OF PHOTO EVALUATION DATA                                          (0
```

## 3.4 PHOTOGRAPHIC EVALUATION DATA

This section contains a listing of the user program EVAL output for all the photographs obtained by Lunar Orbiter Flight III. This output provides an evaluation of the camera state vector (position, velocity, altitude, etc.) at the photo time and an evaluation of the properties of the photograph (resolution, lighting angle, corner points, etc.)

A table of definitions of the evaluation program output terminology is presented in Section 2.4 of this document.

**********  **********
* PHOTO FRA  UMBER 1 OF 16 *
**********  **********

# FRAME 5

| | YEAR | MONTH | DAY | HOUR | MINUTE | SECOND |
|---|---|---|---|---|---|---|
| GMT | 67 | 2 | 15 | 10 | 0 | 40.599 |

| | | | | | |
|---|---|---|---|---|---|
| LONGITUDE OF NADIR POINT | = | 34.2164057 | DEG | LATITUDE OF NADIR POINT | = | 3.1079424 | DEG |
| LONG OF CAMERA AXIS INTERSECT | = | 34.1564322 | DEG | LATI OF CAMERA AXIS INTERSECT | = | 3.1303496 | DEG |
| SPACECRAFT RADIUS | = | 1793.9676361 | KM | SPACECRAFT ALTITUDE | = | 55.8776395 | KM |
| MEAN ALTITUDE RATE | = | -0.0702900 | KM/SEC | TIME FROM PERIAPSIS | = | -137.8328152 | SEC |
| HORIZONTAL VELOCITY | = | 1.9073033 | KM/SEC | TRUE ANOMALY | = | 351.5734520 | DEG |
| SCALE FACTOR (HIGH) | = | 0.0109099 | M/KM | TILT DISTANCE (HIGH) | = | 21.1731232 | MM |
| SCALE FACTOR (LOW) | = | 0.0014308 | M/KM | TILT DISTANCE (LOW) | = | 2.7764092 | MM |
| IMAGE MOTION COMPENSATION (V/H) | = | 0.0341354 | RAD/SEC | SWING ANGLE | = | 89.7727291 | DEG |
| EMISSION ANGLE | = | 2.0515917 | DEG | INCIDENCE ANGLE | = | 76.7854524 | DEG |
| PHASE ANGLE | = | 74.8378563 | DEG | NORTH DEVIATION ANGLE | = | 339.3067551 | DEG |
| TILT ANGLE | = | 1.9876589 | DEG | RESOLUTION CONSTANT | = | 1.2132984 | MTR |
| TILT AZIMUTH | = | 290.4793243 | DEG | SUN AZIMUTH AT PRINCIPAL GND PT | = | 92.2804765 | DEG |
| SUN ANGLE AT NADIR | = | 76.7251263 | DEG | SUN ARC AT NADIR | = | 2327.4869085 | KM |
| LONGITUDE DISTANCE TO TARGET | = | -1.0335941 | DEG | LATITUDE DISTANCE TO TARGET | = | 0.1909828 | DEG |
| LONGITUDE ARC LENGTH TO TARGET | = | -31.3544846 | KM | LATITUDE ARC LENGTH TO TARGET | = | 5.7935371 | KM |
| FORWARD OVERLAP RATIO | = | 0. | PCT | SIDE OVERLAP RATIO | = | 0. | PCT |
| TIME BETWEEN PHOTOS | = | 0. | SEC | ALPHA | = | 1.9471409 | DEG. |

| | X | Y | Z | MAGNITUDE (KM) |
|---|---|---|---|---|
| DIRECTION COSINES TO TARGET | -0.98700716 | -0.08471712 | -0.13652809 | 64.56633365 |
| CAMERA AXIS | -0.80748065 | -0.58839204 | -0.04206894 | 55.91235877 |
| C1 | -0.86042335 | -0.49804696 | 0.10780025 | 56.80070496 |
| C2 | -0.77535518 | -0.59120815 | -0.22202992 | 56.80363464 |
| C3 | -0.72754718 | -0.65906958 | -0.19053192 | 56.98786926 |
| C4 | -0.81261534 | -0.56590839 | 0.13929924 | 56.98492432 |

| | X | Y | Z | X DOT | Y DOT | Z DOT |
|---|---|---|---|---|---|---|
| STATE VECTOR (1950.0) | -642.5546951 | -1580.3553110 | -554.9766772 | 1.6895435 | -0.3158209 | -0.8297197 |

LONG 35.0088 DEG  LONG 34.4817 DEG
LATI 3.6032 DEG  LATI 2.2126 DEG

(1) • 45.10185 KM • (2)

LOW RESOLUTION

38.62700 KM  38.63154 KM

(4) • 46.23643 KM • (3)

LONG 33.8219 DEG  LONG 33.2828 DEG
LATI 4.0711 DEG  LATI 2.6451 DEG

LONG 34.3514 DEG  LONG 34.1173 DEG
LATI 3.4102 DEG  LATI 2.7917 DEG

(1) • 20.05877 KM • (2)

HIGH RESOLUTION

5.05463 KM  5.05488 KM

(4) • 20.12383 KM • (3)

LONG 34.1957 DEG  LONG 33.9638 DEG
LATI 3.4701 DEG  LATI 2.8496 DEG

LOW RESOLUTION 5

| INDEX | LONGITUDE | LATITUDE |
|---|---|---|
| 1 | 35.0087667 | 3.6031655 |
| 2 | 34.9563651 | 3.4666181 |
| 3 | 34.9065547 | 3.3364808 |
| 4 | 34.8586640 | 3.2110392 |
| 5 | 34.8121109 | 3.0887993 |
| 6 | 34.7663727 | 2.9684130 |
| 7 | 34.7209649 | 2.8486114 |
| 8 | 34.6754155 | 2.7281517 |
| 9 | 34.6292462 | 2.6057615 |
| 10 | 34.5819530 | 2.4800878 |
| 11 | 34.5329809 | 2.3496277 |
| 12 | 34.4816947 | 2.2126457 |
| 13 | 34.3690557 | 2.2538702 |
| 14 | 34.2597547 | 2.2937534 |
| 15 | 34.1528435 | 2.3326513 |
| 16 | 34.0474529 | 2.3708892 |
| 17 | 33.9427586 | 2.4087652 |
| 18 | 33.8379641 | 2.4465711 |
| 19 | 33.7322655 | 2.4845940 |
| 20 | 33.6248317 | 2.5231307 |
| 21 | 33.5147748 | 2.5624897 |
| 22 | 33.4011221 | 2.6030115 |
| 23 | 33.2827725 | 2.6450735 |
| 24 | 33.3364129 | 2.7851377 |
| 25 | 33.3873868 | 2.9186089 |
| 26 | 33.4363852 | 3.0472538 |
| 27 | 33.4840078 | 3.1726057 |
| 28 | 33.5307879 | 3.2960546 |
| 29 | 33.5772247 | 3.4189006 |
| 30 | 33.6238008 | 3.5424246 |
| 31 | 33.6710062 | 3.6679311 |
| 32 | 33.7193580 | 3.7968150 |
| 33 | 33.7694235 | 3.9306227 |
| 34 | 33.8218541 | 4.0711333 |
| 35 | 33.9386697 | 4.0246035 |
| 36 | 34.0509200 | 3.9799904 |
| 37 | 34.1596861 | 3.9368501 |
| 38 | 34.2659235 | 3.8948009 |
| 39 | 34.3705063 | 3.8534885 |
| 40 | 34.4742551 | 3.8125876 |
| 41 | 34.5779638 | 3.7717849 |
| 42 | 34.6824250 | 3.7307688 |
| 43 | 34.7884555 | 3.6892208 |
| 44 | 34.8969202 | 3.6468070 |

HIGH RESOLUTION 5

| INDEX | LONGITUDE | LATITUDE |
|---|---|---|
| 1 | 34.3514380 | 3.4101887 |
| 2 | 34.3297815 | 3.3530329 |
| 3 | 34.3083425 | 3.2964405 |
| 4 | 34.2870708 | 3.2402810 |
| 5 | 34.2659178 | 3.1844279 |
| 6 | 34.2448373 | 3.1287568 |
| 7 | 34.2237821 | 3.0731445 |
| 8 | 34.2027068 | 3.0174716 |
| 9 | 34.1815643 | 2.9616127 |
| 10 | 34.1603084 | 2.9054463 |
| 11 | 34.1388912 | 2.8488454 |
| 12 | 34.1172619 | 2.7916767 |
| 13 | 34.1030693 | 2.7969342 |
| 14 | 34.0888767 | 2.8021901 |
| 15 | 34.0746827 | 2.8074450 |
| 16 | 34.0604844 | 2.8127017 |
| 17 | 34.0462804 | 2.8179593 |
| 18 | 34.0320683 | 2.8232194 |
| 19 | 34.0178466 | 2.8284812 |
| 20 | 34.0036130 | 2.8337464 |
| 21 | 33.9893646 | 2.8390159 |
| 22 | 33.9751015 | 2.8442905 |
| 23 | 33.9608197 | 2.8495702 |
| 24 | 33.9825431 | 2.9069165 |
| 25 | 34.0040421 | 2.9636976 |
| 26 | 34.0253778 | 3.0200424 |
| 27 | 34.0465927 | 3.0760807 |
| 28 | 34.0677352 | 3.1319354 |
| 29 | 34.0888524 | 3.1877295 |
| 30 | 34.1099887 | 3.2435859 |
| 31 | 34.1311932 | 3.2996268 |
| 32 | 34.1525116 | 3.3559784 |
| 33 | 34.1739922 | 3.4127646 |
| 34 | 34.1956840 | 3.4701202 |
| 35 | 34.2099004 | 3.4646476 |
| 36 | 34.2240996 | 3.4591817 |
| 37 | 34.2382827 | 3.4537227 |
| 38 | 34.2524524 | 3.4482687 |
| 39 | 34.2666121 | 3.4428200 |
| 40 | 34.2807612 | 3.4373763 |
| 41 | 34.2949038 | 3.4319352 |
| 42 | 34.3090405 | 3.4264967 |
| 43 | 34.3231740 | 3.4210598 |
| 44 | 34.3373051 | 3.4156247 |

**********
* PHOTO FRAME NUMBER 2 OF 16 *
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## FRAME 6

| | YEAR | MONTH | DAY | HOUR | MINUTE | SECOND |
|---|---|---|---|---|---|---|
| GMT | 67 | 2 | 15 | 10 | 0 | 43.199 |

| | | | | | |
|---|---|---|---|---|---|
| LONGITUDE OF NADIR POINT | = | 34.3643493 | DEG | LATITUDE OF NADIR POINT | = | 3.0518847 | DEG |
| LONG OF CAMERA AXIS INTERSECT | = | 34.3093343 | DEG | LATI OF CAMERA AXIS INTERSECT | = | 3.0723847 | DEG |
| SPACECRAFT RADIUS | = | 1793.7865906 | KM | SPACECRAFT ALTITUDE | = | 55.6965942 | KM |
| MEAN ALTITUDE RATE | = | -0.0689781 | KM/SEC | TIME FROM PERIAPSIS | = | -135.2333088 | SEC |
| HORIZONTAL VELOCITY | = | 1.9074919 | KM/SEC | TRUE ANOMALY | = | 351.7318192 | DEG |
| SCALE FACTOR (HIGH) | = | 0.0109464 | M/KM | TILT DISTANCE (HIGH) | = | 19.4824464 | KM |
| SCALE FACTOR (LOW) | = | 0.0014356 | M/KM | TILT DISTANCE (LOW) | = | 2.5550749 | KM |
| IMAGE MOTION COMPENSATION (V/H) | = | 0.034252 | RAD/SEC | SWING ANGLE | = | 89.7482796 | DEG |
| EMISSION ANGLE | = | 1.8879649 | DEG | INCIDENCE ANGLE | = | 76.6306200 | DEG |
| PHASE ANGLE | = | 74.8378563 | DEG | NORTH DEVIATION ANGLE | = | 339.2966003 | DEG |
| TILT ANGLE | = | 1.8293158 | DEG | RESOLUTION CONSTANT | = | 1.2392522 | MIR |
| TILT AZIMUTH | = | 290.4647331 | DEG | SUN AZIMUTH AT PRINCIPAL GNC PT | = | 92.2765255 | DEG |
| SUN ANGLE AT NADIR | = | 76.5749130 | DEG | SUN ARC AT NADIR | = | 2322.9301147 | KM |
| LONGITUDE DISTANCE TO TARGET | = | -0.8856502 | DEG | LATITUDE DISTANCE TO TARGET | = | 0.1348847 | DEG |
| LONGITUDE ARC LENGTH TO TARGET | = | -26.8665459 | KM | LATITUDE ARC LENGTH TO TARGET | = | 4.0917819 | KM |
| FORWARD OVERLAP RATIO | = | 1.8171414 | PCT | SIDE OVERLAP RATIO | = | 0. | PCT |
| TIME BETWEEN PHOTOS | = | 2.6000261 | SEC | ALPHA | = | 1.7920315 | DEG. |

| | X | Y | Z | MAGNITUDE (KM) |
|---|---|---|---|---|
| DIRECTION COSINES TO TARGET | -0.98234815 | -0.14872741 | -0.11346519 | 62.14727640 |
| CAMERA AXIS | -0.80748447 | -0.58838681 | -0.04206884 | 55.72590637 |
| C1 | -0.86042656 | -0.49804138 | 0.10780033 | 56.61846924 |
| C2 | -0.77535902 | -0.59120313 | -0.22202983 | 56.62139893 |
| C3 | -0.72755145 | -0.65906486 | -0.19053183 | 56.79037476 |
| C4 | -0.81261900 | -0.56590311 | 0.13929833 | 56.78739929 |

| | X | Y | Z | X DOT | Y DOT | Z DOT |
|---|---|---|---|---|---|---|
| STATE VECTOR (1950.0) | -638.1603418 | -1581.1716003 | -557.0623550 | 1.6909563 | -0.3123294 | -0.0284934 |

LONG 35.1596 DEG
LATI 3.5440 DEG

LONG 34.6336 DEG
LATI 2.1568 DEG

* 44.99479 KM *
(1) (2)

LOW RESOLUTION

38.49213 KM 38.49671 KM

(4) (3)
* 46.03521 KM *

LONG 33.9765 DEG
LATI 4.0091 DEG

LONG 33.4395 DEG
LATI 2.5893 DEG

LONG 34.5037 DEG
LATI 3.3513 DEG

LONG 34.2702 DEG
LATI 2.7348 DEG

* 19.99442 KM *
(1) (2)

HIGH RESOLUTION

5.03724 KM 5.03749 KM

(4) (3)
* 20.05408 KM *

LONG 34.3485 DEG
LATI 3.4113 DEG

LONG 34.1144 DEG
LATI 2.7926 DEG

LOW RESOLUTION 6

| INDEX | LONGITUDE | LATITUDE |
|---|---|---|
| 1 | 35.1596246 | 3.5439776 |
| 2 | 35.1073289 | 3.4077640 |
| 3 | 35.0576205 | 3.2779435 |
| 4 | 35.0098286 | 3.1528059 |
| 5 | 34.9633703 | 3.0308639 |
| 6 | 34.9177265 | 2.9107687 |
| 7 | 34.8724127 | 2.7912566 |
| 8 | 34.8269577 | 2.6710880 |
| 9 | 34.7808847 | 2.5489950 |
| 10 | 34.7336917 | 2.4236251 |
| 11 | 34.6848226 | 2.2934784 |
| 12 | 34.6336460 | 2.1568294 |
| 13 | 34.5212522 | 2.1981290 |
| 14 | 34.4122305 | 2.2380728 |
| 15 | 34.3056316 | 2.2770177 |
| 16 | 34.2005844 | 2.3152855 |
| 17 | 34.0962706 | 2.3531820 |
| 18 | 33.9918923 | 2.3909939 |
| 19 | 33.8866515 | 2.4290124 |
| 20 | 33.7797213 | 2.4675287 |
| 21 | 33.6702213 | 2.5068561 |
| 22 | 33.5571871 | 2.5473292 |
| 23 | 33.4395285 | 2.5893264 |
| 24 | 33.4929471 | 2.7287715 |
| 25 | 33.5437112 | 2.8616562 |
| 26 | 33.5925102 | 2.9897343 |
| 27 | 33.6399412 | 3.1145372 |
| 28 | 33.6865330 | 3.2374422 |
| 29 | 33.7327857 | 3.3597495 |
| 30 | 33.7791772 | 3.4827296 |
| 31 | 33.8261967 | 3.6076828 |
| 32 | 33.8743591 | 3.7359965 |
| 33 | 33.9242311 | 3.8692099 |
| 34 | 33.9764581 | 4.0090947 |
| 35 | 34.0926905 | 3.9629337 |
| 36 | 34.2044258 | 3.9186528 |
| 37 | 34.3127341 | 3.8758215 |
| 38 | 34.4185634 | 3.8340558 |
| 39 | 34.5227823 | 3.7930089 |
| 40 | 34.6262078 | 3.7523547 |
| 41 | 34.7296276 | 3.7117851 |
| 42 | 34.8338361 | 3.6709875 |
| 43 | 34.9396462 | 3.6296487 |
| 44 | 35.0479259 | 3.5874321 |

HIGH RESOLUTION 6

| INDEX | LONGITUDE | LATITUDE |
|---|---|---|
| 1 | 34.5037394 | 3.3513031 |
| 2 | 34.4821444 | 3.2943334 |
| 3 | 34.4607673 | 3.2379262 |
| 4 | 34.4395556 | 3.1819503 |
| 5 | 34.4184637 | 3.1262800 |
| 6 | 34.3974442 | 3.0707889 |
| 7 | 34.3764496 | 3.0153603 |
| 8 | 34.3554349 | 2.9598675 |
| 9 | 34.3343534 | 2.9041913 |
| 10 | 34.3131599 | 2.8482076 |
| 11 | 34.2918048 | 2.7917911 |
| 12 | 34.2702379 | 2.7348085 |
| 13 | 34.2560949 | 2.7400584 |
| 14 | 34.2419534 | 2.7453066 |
| 15 | 34.2278099 | 2.7505547 |
| 16 | 34.2136636 | 2.7558028 |
| 17 | 34.1995111 | 2.7610510 |
| 18 | 34.1853528 | 2.7663026 |
| 19 | 34.1711841 | 2.7715550 |
| 20 | 34.1570053 | 2.7768108 |
| 21 | 34.1428127 | 2.7820709 |
| 22 | 34.1286049 | 2.7873361 |
| 23 | 34.1143799 | 2.7926056 |
| 24 | 34.1360316 | 2.8497504 |
| 25 | 34.1574659 | 2.9063308 |
| 26 | 34.1787338 | 2.9624784 |
| 27 | 34.1998820 | 3.0183195 |
| 28 | 34.2209582 | 3.0739778 |
| 29 | 34.2420096 | 3.1295756 |
| 30 | 34.2630796 | 3.1852356 |
| 31 | 34.2842174 | 3.2410792 |
| 32 | 34.3054695 | 3.2972319 |
| 33 | 34.3268833 | 3.3538183 |
| 34 | 34.3485079 | 3.4109708 |
| 35 | 34.3626728 | 3.4055237 |
| 36 | 34.3768210 | 3.4000826 |
| 37 | 34.3909559 | 3.3946492 |
| 38 | 34.4050770 | 3.3892201 |
| 39 | 34.4191875 | 3.3837943 |
| 40 | 34.4332895 | 3.3783754 |
| 41 | 34.4473844 | 3.3729582 |
| 42 | 34.4614754 | 3.3675419 |
| 43 | 34.4755635 | 3.3621290 |
| 44 | 34.4896502 | 3.3567152 |

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* PHOTO FRAME NUMBER 3 OF 16 *
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## FRAME 7

| | YEAR | MONTH | DAY | HOUR | MINUTE | SECOND |
|---|---|---|---|---|---|---|
| GMT | 67 | 2 | 15 | 10 | 3 | 45.699 |

| | | | | | |
|---|---|---|---|---|---|
| LONGITUDE OF NADIR POINT | = | 34.5066204 | DEG | LATITUDE OF NADIR POINT | = | 2.9979143 | DEG |
| LONG OF CAMERA AXIS INTERSECT | = | 34.4563413 | DEG | LATI OF CAMERA AXIS INTERSECT | = | 3.0166332 | DEG |
| SPACECRAFT RADIUS | = | 1793.6157227 | KM | SPACECRAFT ALTITUDE | = | 35.5257263 | KM |
| MEAN ALTITUDE RATE | = | -0.0677159 | KM/SEC | TIME FROM PERIAPSIS | = | -132.7337933 | SEC |
| HORIZONTAL VELOCITY | = | 1.9076731 | KM/SEC | TRUE ANOMALY | = | 351.8841248 | DEG |
| SCALE FACTOR (HIGH) | = | 0.0109810 | M/KM | TILT DISTANCE (HIGH) | = | 17.8596029 | MM |
| SCALE FACTOR (LOW) | = | 0.0014431 | M/KM | TILT DISTANCE (LOW) | = | 2.3422430 | MM |
| IMAGE MOTION COMPENSATION (V/H) | = | 0.0343623 | RAD/SEC | SWING ANGLE | = | 89.7225370 | DEG |
| EMISSION ANGLE | = | 1.7306249 | DEG | INCIDENCE ANGLE | = | 76.4813757 | DEG |
| PHASE ANGLE | = | 74.8378582 | DEG | NORTH DEVIATION ANGLE | = | 339.2871323 | DEG |
| TILT ANGLE | = | 1.6770289 | DEG | RESOLUTION CONSTANT | = | 1.2354410 | MTR |
| TILT AZIMUTH | = | 290.4465446 | DEG | SUN AZIMUTH AT PRINCIPAL GND PT | = | 92.2724323 | DEG |
| SUN ANGLE AT NADIR | = | 76.4304619 | DEG | SUN ARC AT NADIR | = | 2319.5481262 | KM |
| LONGITUDE DISTANCE TO TARGET | = | -0.7433796 | DEG | LATITUDE DISTANCE TO TARGET | = | 0.0809143 | DEG |
| LONGITUDE ARC LENGTH TO TARGET | = | -22.5507123 | KM | LATITUDE ARC LENGTH TO TARGET | = | 2.4545659 | KM |
| FORWARD OVERLAP RATIO | = | 5.2827735 | PCT | SIDE OVERLAP RATIO | = | 0. | PCT |
| TIME BETWEEN PHOTOS | = | 2.4999261 | SEC | ALPHA | = | 1.6428961 | DEG. |

| | X | Y | Z | MAGNITUDE (KM) |
|---|---|---|---|---|
| DIRECTION COSINES TO TARGET | -0.97275364 | -0.21403702 | -0.08909823 | 60.10563087 |
| CAMERA AXIS | -0.80748808 | -0.58838186 | -0.04236874 | 55.55027771 |
| C1 | -0.86042960 | -0.49803611 | 0.10780044 | 56.44691467 |
| C2 | -0.77536267 | -0.59119838 | -0.22202974 | 56.44987488 |
| C3 | -0.72755551 | -0.65906040 | -0.19053174 | 56.60426331 |
| C4 | -0.81262245 | -0.56589814 | 0.13929842 | 56.60127258 |

| | X | Y | Z | X DOT | Y DOT | Z DOT |
|---|---|---|---|---|---|---|
| STATE VECTOR (1950.0) | -633.9309616 | -1581.9482269 | -559.1321030 | 1.6923060 | -0.3089694 | -0.8273095 |

LONG 35.3047 DEG
LATI 3.4871 DEG

LONG 34.7798 DEG
LATI 2.1031 DEG

(1) • 44.89464 KM • (2)

LOW RESOLUTION

38.36546 KM 38.37007 KM

(4) • 45.84519 KM • (3)

LONG 34.1251 DEG
LATI 3.9495 DEG

LONG 33.5902 DEG
LATI 2.5357 DEG

LONG 34.6502 DEG
LATI 3.2947 DEG

LONG 34.4173 DEG
LATI 2.6801 DEG

(1) • 19.93384 KM • (2)

HIGH RESOLUTION

5.32090 KM 5.32117 KM

(4) • 19.98835 KM • (3)

LONG 34.4954 DEG
LATI 3.3541 DEG

LONG 34.2620 DEG
LATI 2.7378 DEG

LOW RESOLUTION 7

| INDEX | LONGITUDE | LATITUDE |
|---|---|---|
| 1 | 35.3047204 | 3.4870787 |
| 2 | 35.2525244 | 3.3511750 |
| 3 | 35.2029123 | 3.2216525 |
| 4 | 35.1552110 | 3.0968009 |
| 5 | 35.1088424 | 2.9751347 |
| 6 | 35.0632873 | 2.8553119 |
| 7 | 35.0180612 | 2.7360721 |
| 8 | 34.9726954 | 2.6161759 |
| 9 | 34.9267135 | 2.4943594 |
| 10 | 34.8796120 | 2.3692739 |
| 11 | 34.8308401 | 2.2394218 |
| 12 | 34.7797647 | 2.1030835 |
| 13 | 34.6675997 | 2.1444591 |
| 14 | 34.5588384 | 2.1844626 |
| 15 | 34.4525313 | 2.2234536 |
| 16 | 34.3478079 | 2.2617539 |
| 17 | 34.2438512 | 2.2996691 |
| 18 | 34.1398649 | 2.3374905 |
| 19 | 34.0350547 | 2.3755039 |
| 20 | 33.9286003 | 2.4140048 |
| 21 | 33.8196259 | 2.4533015 |
| 22 | 33.7071757 | 2.4937302 |
| 23 | 33.5901704 | 2.5356658 |
| 24 | 33.6433783 | 2.6745279 |
| 25 | 33.6939445 | 2.8068568 |
| 26 | 33.7425556 | 2.9344020 |
| 27 | 33.7898045 | 3.0586842 |
| 28 | 33.8362198 | 3.1810777 |
| 29 | 33.8822970 | 3.3028745 |
| 30 | 33.9285150 | 3.4253407 |
| 31 | 33.9753594 | 3.5497713 |
| 32 | 34.0233431 | 3.6775471 |
| 33 | 34.0730305 | 3.8102005 |
| 34 | 34.1250653 | 3.9494945 |
| 35 | 34.2407484 | 3.9036801 |
| 36 | 34.3519988 | 3.8597176 |
| 37 | 34.4598746 | 3.8171775 |
| 38 | 34.5653205 | 3.7756799 |
| 39 | 34.6691976 | 3.7348840 |
| 40 | 34.7723188 | 3.6944655 |
| 41 | 34.8754702 | 3.6541161 |
| 42 | 34.9794426 | 3.6135269 |
| 43 | 35.0850496 | 3.5723853 |
| 44 | 35.1931581 | 3.5303557 |

HIGH RESULUTION 7

| INDEX | LONGITUDE | LATITUDE |
|---|---|---|
| 1 | 34.6531789 | 3.2946826 |
| 2 | 34.6286430 | 3.2378887 |
| 3 | 34.6073232 | 3.1816557 |
| 4 | 34.5861692 | 3.1258522 |
| 5 | 34.5651350 | 3.0703527 |
| 6 | 34.5441718 | 3.0150333 |
| 7 | 34.5232353 | 2.9597745 |
| 8 | 34.5022783 | 2.9044525 |
| 9 | 34.4812546 | 2.8489487 |
| 10 | 34.4601183 | 2.7931367 |
| 11 | 34.4388208 | 2.7368935 |
| 12 | 34.4173150 | 2.6800868 |
| 13 | 34.4032192 | 2.6853298 |
| 14 | 34.3891234 | 2.6905703 |
| 15 | 34.3750277 | 2.6958107 |
| 16 | 34.3609295 | 2.7010512 |
| 17 | 34.3468275 | 2.7062934 |
| 18 | 34.3327179 | 2.7115347 |
| 19 | 34.3186002 | 2.7167794 |
| 20 | 34.3044724 | 2.7220275 |
| 21 | 34.2903318 | 2.7272783 |
| 22 | 34.2761765 | 2.7325349 |
| 23 | 34.2620049 | 2.7377951 |
| 24 | 34.2835927 | 2.7947503 |
| 25 | 34.3049626 | 2.8511420 |
| 26 | 34.3261666 | 2.9071026 |
| 27 | 34.3472524 | 2.9627576 |
| 28 | 34.3682656 | 3.0182298 |
| 29 | 34.3892541 | 3.0736431 |
| 30 | 34.4102621 | 3.1291179 |
| 31 | 34.4313383 | 3.1847754 |
| 32 | 34.4525275 | 3.2407411 |
| 33 | 34.4738779 | 3.2971389 |
| 34 | 34.4954391 | 3.3541009 |
| 35 | 34.5095558 | 3.3486778 |
| 36 | 34.5236568 | 3.3432614 |
| 37 | 34.5377445 | 3.3378502 |
| 38 | 34.5518203 | 3.3324441 |
| 39 | 34.5658855 | 3.3270423 |
| 40 | 34.5799427 | 3.3216439 |
| 41 | 34.5939937 | 3.3162497 |
| 42 | 34.6080413 | 3.3108565 |
| 43 | 34.6220865 | 3.3054640 |
| 44 | 34.6361313 | 3.3000733 |

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* PHOTO FRAME NUMBER 4 OF 16 *
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# FRAME 8

| | YEAR | MONTH | DAY | HOUR | MINUTE | SECOND |
|---|---|---|---|---|---|---|
| GMT | 67 | 2 | 15 | 10 | 3 | 48.200 |

| | | | | | |
|---|---|---|---|---|---|
| LONGITUDE OF NADIR POINT | = | 34.6489024 | DEG | LATITUDE OF NADIR POINT | = 2.9439148 DEG |
| LONG OF CAMERA AXIS INTERSECT | = | 34.6033263 | DEG | LATI OF CAMERA AXIS INTERSECT | = 2.9678413 DEG |
| SPACECRAFT RADIUS | = | 1793.4479980 | KM | SPACECRAFT ALTITUDE | = 55.3580017 KM |
| MEAN ALTITUDE RATE | = | -0.0664530 | KM/SEC | TIME FROM PERIAPSIS | = -135.2342434 SEC |
| HORIZONTAL VELOCITY | = | 1.9078509 | KM/SEC | TRUE ANOMALY | = 352.0364647 DEG |
| SCALE FACTOR (HIGH) | = | 0.0110152 | M/KM | TILT DISTANCE (HIGH) | = 16.2368803 MM |
| SCALE FACTOR (LOW) | = | 0.0014446 | M/KM | TILT DISTANCE (LOW) | = 2.1294269 MM |
| IMAGE MOTION COMPENSATION (V/H) | = | 0.0344710 | RAD/SEC | SWING ANGLE | = 89.6915312 DEG |
| EMISSION ANGLE | = | 1.5733053 | DEG | INCIDENCE ANGLE | = 76.3321438 DEG |
| PHASE ANGLE | = | 74.8378592 | DEG | NORTH DEVIATION ANGLE | = 339.2779465 DEG |
| TILT ANGLE | = | 1.5247297 | DEG | RESOLUTION CONSTANT | = 1.2017077 MTR |
| TILT AZIMUTH | = | 290.4230385 | DEG | SUN AZIMUTH AT PRINCIPAL GND PT | = 92.2680492 DEG |
| SUN ANGLE AT NADIR | = | 76.2859936 | DEG | SUN ARC AT NADIR | = 2314.1656494 KM |
| LONGITUDE DISTANCE TO TARGET | = | -0.6010976 | DEG | LATITUDE DISTANCE TO TARGET | = 0.0269148 DEG |
| LONGITUDE ARC LENGTH TO TARGET | = | -18.2345316 | KM | LATITUDE ARC LENGTH TO TARGET | = 0.8164733 KM |
| FORWARD OVERLAP RATIO | = | 4.9805850 | PCT | SIDE OVERLAP RATIO | = 0. PCT |
| TIME BETWEEN PHOTOS | = | 2.5002480 | SEC | ALPHA | = 1.4937666 DEG. |

| | X | Y | Z | MAGNITUDE (KM) |
|---|---|---|---|---|
| DIRECTION COSINES TO TARGET | -0.95726108 | -0.28235264 | -0.06267541 | 58.37268448 |
| CAMERA AXIS | -0.80749170 | -0.58837689 | -0.04206865 | 55.37823486 |
| C1 | -0.86043265 | -0.49803080 | 0.10780054 | 56.27896118 |
| C2 | -0.77536633 | -0.59119362 | -0.22202965 | 56.28193665 |
| C3 | -0.72755960 | -0.65905593 | -0.19053166 | 56.42184448 |
| C4 | -0.81262592 | -0.56589312 | 0.13929851 | 56.41883850 |

| | X | Y | Z | X DOT | Y DOT | Z DOT |
|---|---|---|---|---|---|---|
| STATE VECTOR (1950.0) | -629.6985168 | -1582.7164459 | -561.1988983 | 1.6936471 | -0.3056069 | -0.8261208 |

LONG 35.4499 DEG
LATI 3.4302 DEG

LONG 34.9259 DEG
LATI 2.0493 DEG

(1) • 44.79718 KM • (2)

LOW RESOLUTION

38.24171 KM 38.24635 KM

(4) • 45.65854 KM • (3)

LONG 34.2736 DEG
LATI 3.8899 DEG

LONG 33.7407 DEG
LATI 2.4819 DEG

LONG 34.7966 DEG
LATI 3.2381 DEG

LONG 34.5644 DEG
LATI 2.6253 DEG

(1) • 19.87453 KM • (2)

HIGH RESOLUTION

5.00493 KM 5.00520 KM

(4) • 19.92393 KM • (3)

LONG 34.6424 DEG
LATI 3.2972 DEG

LONG 34.4396 DEG
LATI 2.6829 DEG

LOW RESOLUTION 8

| INDEX | LONGITUDE | LATITUDE |
|---|---|---|
| 1 | 35.4498520 | 3.4301893 |
| 2 | 35.3977532 | 3.2945904 |
| 3 | 35.3482323 | 3.1653546 |
| 4 | 35.3006210 | 3.0407805 |
| 5 | 35.2543402 | 2.9193842 |
| 6 | 35.2088699 | 2.7998277 |
| 7 | 35.1637292 | 2.6808509 |
| 8 | 35.1184492 | 2.5612201 |
| 9 | 35.0725551 | 2.4396726 |
| 10 | 35.0255446 | 2.3148646 |
| 11 | 34.9768667 | 2.1852993 |
| 12 | 34.9258909 | 2.0492616 |
| 13 | 34.8139462 | 2.0907149 |
| 14 | 34.7054381 | 2.1307808 |
| 15 | 34.5994153 | 2.1698179 |
| 16 | 34.4950085 | 2.2081532 |
| 17 | 34.3913999 | 2.2460915 |
| 18 | 34.2877984 | 2.2839213 |
| 19 | 34.1834106 | 2.3219322 |
| 20 | 34.0774231 | 2.3604177 |
| 21 | 33.9689651 | 2.3996870 |
| 22 | 33.8570871 | 2.4400739 |
| 23 | 33.7407241 | 2.4819490 |
| 24 | 33.7937245 | 2.6202390 |
| 25 | 33.8440962 | 2.7520232 |
| 26 | 33.8925228 | 2.8790434 |
| 27 | 33.9395928 | 3.0028141 |
| 28 | 33.9858336 | 3.1247048 |
| 29 | 34.0317402 | 3.2460004 |
| 30 | 34.0777864 | 3.3679637 |
| 31 | 34.1244583 | 3.4918812 |
| 32 | 34.1722660 | 3.6191276 |
| 33 | 34.2217722 | 3.7512295 |
| 34 | 34.2736187 | 3.8899438 |
| 35 | 34.3887620 | 3.8444726 |
| 36 | 34.4995370 | 3.8008226 |
| 37 | 34.6069913 | 3.7585685 |
| 38 | 34.7120609 | 3.7173372 |
| 39 | 34.8156052 | 3.6767873 |
| 40 | 34.9184289 | 3.6366010 |
| 41 | 35.0213184 | 3.5964685 |
| 42 | 35.1250610 | 3.5560850 |
| 43 | 35.2304726 | 3.5151363 |
| 44 | 35.3384190 | 3.4732912 |

HIGH RESOLUTION 8

| INDEX | LONGITUDE | LATITUDE |
|---|---|---|
| 1 | 34.7966108 | 3.2380586 |
| 2 | 34.7751327 | 3.1814389 |
| 3 | 34.7538691 | 3.1253758 |
| 4 | 34.7327719 | 3.0697414 |
| 5 | 34.7117925 | 3.0144092 |
| 6 | 34.6908860 | 2.9592580 |
| 7 | 34.6700044 | 2.9041657 |
| 8 | 34.6491041 | 2.8490119 |
| 9 | 34.6281366 | 2.7936745 |
| 10 | 34.6070580 | 2.7380332 |
| 11 | 34.5858188 | 2.6819583 |
| 12 | 34.5643697 | 2.6253232 |
| 13 | 34.5503187 | 2.6305602 |
| 14 | 34.5362701 | 2.6357939 |
| 15 | 34.5222216 | 2.6410275 |
| 16 | 34.5081711 | 2.6462603 |
| 17 | 34.4941163 | 2.6514939 |
| 18 | 34.4800563 | 2.6567293 |
| 19 | 34.4659886 | 2.6619654 |
| 20 | 34.4519100 | 2.6672042 |
| 21 | 34.4378209 | 2.6724481 |
| 22 | 34.4237175 | 2.6776937 |
| 23 | 34.4095974 | 2.6829461 |
| 24 | 34.4311204 | 2.7397135 |
| 25 | 34.4524283 | 2.7959217 |
| 26 | 34.4735699 | 2.8516987 |
| 27 | 34.4945936 | 2.9071718 |
| 28 | 34.5155463 | 2.9624639 |
| 29 | 34.5364733 | 3.0176962 |
| 30 | 34.5574203 | 3.0729891 |
| 31 | 34.5784354 | 3.1284639 |
| 32 | 34.5995626 | 3.1842461 |
| 33 | 34.6208520 | 3.2404585 |
| 34 | 34.6423502 | 3.2972336 |
| 35 | 34.6564207 | 3.2918344 |
| 36 | 34.6704755 | 3.2864411 |
| 37 | 34.6845169 | 3.2810529 |
| 38 | 34.6985478 | 3.2756690 |
| 39 | 34.7125688 | 3.2702903 |
| 40 | 34.7265825 | 3.2649149 |
| 41 | 34.7405906 | 3.2595412 |
| 42 | 34.7545958 | 3.2541710 |
| 43 | 34.7686000 | 3.2488008 |
| 44 | 34.7826037 | 3.2434305 |

**********
* PHOTO FRAME NUMBER 5 OF 16 *
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## FRAME 9

| | YEAR | MONTH | DAY | HOUR | MINUTE | SECOND |
|---|---|---|---|---|---|---|
| GMT | 67 | 2 | 15 | 10 | 0 | 50.599 |

| | | | | | |
|---|---|---|---|---|---|
| LONGITUDE OF NADIR POINT | = | 34.7855110 | DEG | LATITUDE OF NADIR POINT | = 2.8920489 DEG |
| LONG OF CAMERA AXIS INTERSECT | = | 34.7444210 | DEG | LATI OF CAMERA AXIS INTERSECT | = 2.9073041 DEG |
| SPACECRAFT RADIUS | = | 1793.2899780 | KM | SPACECRAFT ALTITUDE | = 55.1999817 KM |
| MEAN ALTITUDE RATE | = | -0.0652399 | KM/SEC | TIME FROM PERIAPSIS | = -127.8346481 SEC |
| HORIZONTAL VELOCITY | = | 1.9080185 | KM/SEC | TRUE ANOMALY | = 352.1827354 DEG |
| SCALE FACTOR (HIGH) | = | 0.0110474 | M/KM | TILT DISTANCE (HIGH) | = 14.6787994 MM |
| SCALE FACTOR (LOW) | = | 0.0014488 | M/KM | TILT DISTANCE (LOW) | = 1.9250885 MM |
| IMAGE MOTION COMPENSATION (V/H) | = | 0.0345737 | RAD/SEC | SWING ANGLE | = 89.6555223 DEG |
| EMISSION ANGLE | = | 1.4222685 | DEG | INCIDENCE ANGLE | = 76.1888914 DEG |
| PHASE ANGLE | = | 74.8378592 | DEG | NORTH DEVIATION ANGLE | = 339.2693977 DEG |
| TILT ANGLE | = | 1.3784770 | DEG | RESOLUTION CONSTANT | = 1.1981972 MIR |
| TILT AZIMUTH | = | 290.3939743 | DEG | SUN AZIMUTH AT PRINCIPAL GND PT | = 92.2635689 DEG |
| SUN ANGLE AT NADIR | = | 76.1472836 | DEG | SUN ARC AT NADIR | = 2309.9578247 KM |
| LONGITUDE DISTANCE TO TARGET | = | -0.4644890 | DEG | LATITUDE DISTANCE TO TARGET | = -0.0249511 DEG |
| LONGITUDE ARC LENGTH TO TARGET | = | -14.0904560 | KM | LATITUDE ARC LENGTH TO TARGET | = -0.7569014 KM |
| FORWARD OVERLAP RATIO | = | 8.5036929 | PCT | SIDE OVERLAP RATIO | = 0. PCT |
| TIME BETWEEN PHOTOS | = | 2.3998260 | SEC | ALPHA | = 1.3506050 DEG. |

| | X | Y | Z | MAGNITUDE (KM) |
|---|---|---|---|---|
| DIRECTION COSINES TO TARGET | -0.93613962 | -0.34982341 | -0.03558359 | 57.02573259 |
| CAMERA AXIS | -0.80749518 | -0.58837215 | -0.04206856 | 55.21646118 |
| C1 | -0.86043558 | -0.49802575 | 0.10780063 | 56.12113953 |
| C2 | -0.77536982 | -0.59118906 | -0.22202956 | 56.12414551 |
| C3 | -0.72756349 | -0.65905165 | -0.19053157 | 56.25022888 |
| C4 | -0.81262925 | -0.56588835 | 0.13929861 | 56.24720764 |

| | X | Y | Z | X DOT | Y DOT | Z DOT |
|---|---|---|---|---|---|---|
| STATE VECTOR (1950.0) | -625.6322250 | -1583.4460297 | -563.1802139 | 1.6949265 | -0.3023765 | -0.8249752 |

LONG 35.5892 DEG
LATI 3.3756 DEG

LONG 35.0662 DEG
LATI 1.9975 DEG

(1) • 44.70622 KM • (2)

LOW RESOLUTION

38.12569 KM 38.13036 KM

(4) • 45.48250 KM • (3)

LONG 34.4162 DEG
LATI 3.8328 DEG

LONG 33.8852 DEG
LATI 2.4303 DEG

LONG 34.9372 DEG
LATI 3.1837 DEG

LONG 34.7055 DEG
LATI 2.5727 DEG

(1) • 19.81881 KM • (2)

HIGH RESOLUTION

4.98994 KM 4.99021 KM

(4) • 19.86333 KM • (3)

LONG 34.7834 DEG
LATI 3.2426 DEG

LONG 34.5513 DEG
LATI 2.6303 DEG

LOW RESOLUTION 9

| INDEX | LONGITUDE | LATITUDE |
|---|---|---|
| 1 | 35.5892177 | 3.3755853 |
| 2 | 35.5372095 | 3.2402699 |
| 3 | 35.4877758 | 3.1113039 |
| 4 | 35.4402475 | 2.9869885 |
| 5 | 35.3940473 | 2.8658440 |
| 6 | 35.3486576 | 2.7465360 |
| 7 | 35.3035965 | 2.6278059 |
| 8 | 35.2583966 | 2.5084228 |
| 9 | 35.2125845 | 2.3871263 |
| 10 | 35.1656580 | 2.2625752 |
| 11 | 35.1170683 | 2.1332789 |
| 12 | 35.0661855 | 1.9975229 |
| 13 | 34.9544454 | 2.0390539 |
| 14 | 34.8461728 | 2.0791796 |
| 15 | 34.7404160 | 2.1182645 |
| 16 | 34.6363044 | 2.1566347 |
| 17 | 34.5330234 | 2.1945944 |
| 18 | 34.4297833 | 2.2324353 |
| 19 | 34.3257937 | 2.2704462 |
| 20 | 34.2202449 | 2.3089189 |
| 21 | 34.1122737 | 2.3481627 |
| 22 | 34.0009375 | 2.3885094 |
| 23 | 33.8851786 | 2.4303315 |
| 24 | 33.9379849 | 2.5680811 |
| 25 | 33.9881735 | 2.6993505 |
| 26 | 34.0364242 | 2.8258763 |
| 27 | 34.0833254 | 2.9491646 |
| 28 | 34.1294031 | 3.0705815 |
| 29 | 34.1751466 | 3.1914050 |
| 30 | 34.2210317 | 3.3128910 |
| 31 | 34.2675414 | 3.4363244 |
| 32 | 34.3151836 | 3.5630731 |
| 33 | 34.3645186 | 3.6946559 |
| 34 | 34.4161863 | 3.8328229 |
| 35 | 34.5308223 | 3.7876762 |
| 36 | 34.6411476 | 3.7443216 |
| 37 | 34.7482052 | 3.7023398 |
| 38 | 34.8529234 | 3.6613604 |
| 39 | 34.9561534 | 3.6210435 |
| 40 | 35.0586996 | 3.5810758 |
| 41 | 35.1613455 | 3.5411482 |
| 42 | 35.2648754 | 3.5009594 |
| 43 | 35.3701043 | 3.4601951 |
| 44 | 35.4779005 | 3.4185241 |

HIGH RESOLUTION 9

| INDEX | LONGITUDE | LATITUDE |
|---|---|---|
| 1 | 34.9371853 | 3.1837031 |
| 2 | 34.9157600 | 3.1272430 |
| 3 | 34.8945489 | 3.0713405 |
| 4 | 34.8735056 | 3.0158640 |
| 5 | 34.8525791 | 2.9606906 |
| 6 | 34.8317251 | 2.9056973 |
| 7 | 34.8108964 | 2.8507613 |
| 8 | 34.7900491 | 2.7957646 |
| 9 | 34.7691350 | 2.7405852 |
| 10 | 34.7481093 | 2.6851010 |
| 11 | 34.7269235 | 2.6291865 |
| 12 | 34.7055302 | 2.5727128 |
| 13 | 34.6915221 | 2.5779430 |
| 14 | 34.6775165 | 2.5831715 |
| 15 | 34.6635113 | 2.5883983 |
| 16 | 34.6495056 | 2.5936243 |
| 17 | 34.6354961 | 2.5988511 |
| 18 | 34.6214814 | 2.6040787 |
| 19 | 34.6074595 | 2.6093072 |
| 20 | 34.5934291 | 2.6145392 |
| 21 | 34.5793877 | 2.6197745 |
| 22 | 34.5653324 | 2.6250124 |
| 23 | 34.5512619 | 2.6302554 |
| 24 | 34.5727258 | 2.6868487 |
| 25 | 34.5939736 | 2.7428827 |
| 26 | 34.6150570 | 2.7984881 |
| 27 | 34.6360226 | 2.8537896 |
| 28 | 34.6569171 | 2.9089109 |
| 29 | 34.6777868 | 2.9639716 |
| 30 | 34.6986766 | 3.0190938 |
| 31 | 34.7196336 | 3.0743987 |
| 32 | 34.7407031 | 3.1300076 |
| 33 | 34.7619338 | 3.1860467 |
| 34 | 34.7833738 | 3.2426459 |
| 35 | 34.7974010 | 3.2372680 |
| 36 | 34.8114119 | 3.2318969 |
| 37 | 34.8254104 | 3.2265309 |
| 38 | 34.8393989 | 3.2211684 |
| 39 | 34.8533783 | 3.2158110 |
| 40 | 34.8673511 | 3.2104561 |
| 41 | 34.8813200 | 3.2051046 |
| 42 | 34.8952851 | 3.1997532 |
| 43 | 34.9092493 | 3.1944034 |
| 44 | 34.9232159 | 3.1890528 |

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* PHOTO FRAME NUMBER 6 OF 16 *
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## FRAME 10

| | YEAR | MONTH | DAY | HOUR | MINUTE | SECOND |
|---|---|---|---|---|---|---|
| GMT | 67 | 2 | 15 | 10 | 0 | 53.099 |

| | | | | | |
|---|---|---|---|---|---|
| LONGITUDE OF NADIR POINT | = | 34.9278159 | DEG | LATITUDE OF NADIR POINT | = | 2.8379948 | DEG |
| LONG OF CAMERA AXIS INTERSECT | = | 34.8913698 | DEG | LATI OF CAMERA AXIS INTERSECT | = | 2.8514989 | DEG |
| SPACECRAFT RADIUS | = | 1793.1284485 | KM | SPACECRAFT ALTITUDE | = | 55.0384521 | KM |
| MEAN ALTITUDE RATE | = | -0.0639757 | KM/SEC | TIME FROM PERIAPSIS | = | -125.3351557 | SEC |
| HORIZONTAL VELOCITY | = | 1.9081897 | KM/SEC | TRUE ANOMALY | = | 352.3351259 | DEG |
| SCALE FACTOR (HIGH) | = | 0.0110835 | M/KM | TILT DISTANCE (HIGH) | = | 13.0559921 | MM |
| SCALE FACTOR (LOW) | = | 0.0014532 | M/KM | TILT DISTANCE (LOW) | = | 1.7122613 | MM |
| IMAGE MOTION COMPENSATION (V/H) | = | 0.0346788 | RAD/SEC | SWING ANGLE | = | 89.6088476 | DEG |
| EMISSION ANGLE | = | 1.2649938 | DEG | INCIDENCE ANGLE | = | 76.0396900 | DEG |
| PHASE ANGLE | = | 74.8378592 | DEG | NORTH DEVIATION ANGLE | = | 339.2607765 | DEG |
| TILT ANGLE | = | 1.2261296 | DEG | RESOLUTION CONSTANT | = | 1.1946168 | MTR |
| TILT AZIMUTH | = | 290.3543282 | DEG | SUN AZIMUTH AT PRINCIPAL GND PT | = | 92.2586184 | DEG |
| SUN ANGLE AT NADIR | = | 76.0027838 | DEG | SUN ARC AT NADIR | = | 2305.5743713 | KM |
| LONGITUDE DISTANCE TO TARGET | = | -0.3221841 | DEG | LATITUDE DISTANCE TO TARGET | = | -0.0790052 | DEG |
| LONGITUDE ARC LENGTH TO TARGET | = | -9.7735809 | KM | LATITUDE ARC LENGTH TO TARGET | = | -2.3966542 | KM |
| FORWARD OVERLAP RATIO | = | 4.4018009 | PCT | SIDE OVERLAP RATIO | = | 0. | PCT |
| TIME BETWEEN PHOTOS | = | 2.4999261 | SEC | ALPHA | = | 1.2014912 | DEG. |

| | X | Y | Z | MAGNITUDE (KM) |
|---|---|---|---|---|
| DIRECTION COSINES TO TARGET | -0.90713411 | -0.42080002 | -0.00592127 | 55.97716236 |
| CAMERA AXIS | -0.80749881 | -0.58836717 | -0.04206846 | 55.05146790 |
| C1 | -0.86043864 | -0.49802043 | 0.10780073 | 55.96025085 |
| C2 | -0.77537350 | -0.59118429 | -0.22202946 | 55.96328735 |
| C3 | -0.72756758 | -0.65904718 | -0.19053148 | 56.07507324 |
| C4 | -0.81263271 | -0.56588333 | 0.13929871 | 56.07203674 |

| | X | Y | Z | X DOT | Y DOT | Z DOT |
|---|---|---|---|---|---|---|
| STATE VECTOR (1950.0) | -621.3932571 | -1584.1977539 | -565.2411499 | 1.6962507 | -0.2990090 | -0.8237773 |

LONG 35.7344 DEG
LATI 3.3187 DEG

LONG 35.2123 DEG
LATI 1.9436 DEG

* 44.61414 KM *
(1) (2)

LOW RESOLUTION

38.00770 KM 38.01241 KM

(4) (3)
* 45.00239 KM *

LONG 34.5646 DEG
LATI 3.7734 DEG

LONG 34.0356 DEG
LATI 2.3765 DEG

LONG 35.0836 DEG
LATI 3.1271 DEG

LONG 34.8525 DEG
LATI 2.5179 DEG

* 19.76200 KM *
(1) (2)

HIGH RESOLUTION

4.97469 KM 4.97496 KM

(4) (3)
* 19.80147 KM *

LONG 34.9303 DEG
LATI 3.1858 DEG

LONG 34.6988 DEG
LATI 2.5753 DEG

LOW RESOLUTION 10

| INDEX | LONGITUDE | LATITUDE |
|---|---|---|
| 1 | 35.7344208 | 3.3187180 |
| 2 | 35.6825042 | 3.1836894 |
| 3 | 35.6331573 | 3.0549959 |
| 4 | 35.5857129 | 2.9309425 |
| 5 | 35.5395947 | 2.8100542 |
| 6 | 35.4942861 | 2.6909963 |
| 7 | 35.4493060 | 2.5725164 |
| 8 | 35.4041877 | 2.4533834 |
| 9 | 35.3584585 | 2.3323422 |
| 10 | 35.3116169 | 2.2080524 |
| 11 | 35.2631159 | 2.0790267 |
| 12 | 35.2123270 | 1.9435542 |
| 13 | 35.1007934 | 1.9851680 |
| 14 | 34.9927588 | 2.0253611 |
| 15 | 34.8872709 | 2.0644955 |
| 16 | 34.7834601 | 2.1029025 |
| 17 | 34.6805134 | 2.1408877 |
| 18 | 34.5776405 | 2.1787415 |
| 19 | 34.4740582 | 2.2167532 |
| 20 | 34.3689580 | 2.2552149 |
| 21 | 34.2614841 | 2.2944338 |
| 22 | 34.1507015 | 2.3347422 |
| 23 | 34.0355625 | 2.3765088 |
| 24 | 34.0881691 | 2.5137042 |
| 25 | 34.1381693 | 2.6444485 |
| 26 | 34.1862416 | 2.7704673 |
| 27 | 34.2329707 | 2.8932647 |
| 28 | 34.2788792 | 3.0141949 |
| 29 | 34.3244576 | 3.1345360 |
| 30 | 34.3701777 | 3.2555362 |
| 31 | 34.4165201 | 3.3784736 |
| 32 | 34.4639926 | 3.5047126 |
| 33 | 34.5131516 | 3.6357651 |
| 34 | 34.5646372 | 3.7733704 |
| 35 | 34.6787548 | 3.7285575 |
| 36 | 34.7886233 | 3.6855077 |
| 37 | 34.8952751 | 3.6438043 |
| 38 | 34.9996328 | 3.6030818 |
| 39 | 35.1025448 | 3.5630066 |
| 40 | 35.2048087 | 3.5232625 |
| 41 | 35.3072066 | 3.4835467 |
| 42 | 35.4105229 | 3.4435559 |
| 43 | 35.5155706 | 3.4029795 |
| 44 | 35.6232181 | 3.3614878 |

HIGH RESOLUTION 10

| INDEX | LONGITUDE | LATITUDE |
|---|---|---|
| 1 | 35.0836043 | 3.1270800 |
| 2 | 35.0622334 | 3.0707847 |
| 3 | 35.0410776 | 3.0150461 |
| 4 | 35.0200872 | 2.9597318 |
| 5 | 34.9992156 | 2.9047189 |
| 6 | 34.9784145 | 2.8498853 |
| 7 | 34.9576397 | 2.7951106 |
| 8 | 34.9368453 | 2.7402736 |
| 9 | 34.9159861 | 2.6852547 |
| 10 | 34.8950138 | 2.6299318 |
| 11 | 34.8738847 | 2.5741804 |
| 12 | 34.8525467 | 2.5178715 |
| 13 | 34.8385816 | 2.5230957 |
| 14 | 34.8246202 | 2.5283174 |
| 15 | 34.8106604 | 2.5335374 |
| 16 | 34.7966990 | 2.5387574 |
| 17 | 34.7827358 | 2.5439765 |
| 18 | 34.7687683 | 2.5491965 |
| 19 | 34.7547941 | 2.5544181 |
| 20 | 34.7408118 | 2.5596424 |
| 21 | 34.7268186 | 2.5648692 |
| 22 | 34.7128134 | 2.5700994 |
| 23 | 34.6987920 | 2.5753347 |
| 24 | 34.7201939 | 2.6317487 |
| 25 | 34.7413821 | 2.6876051 |
| 26 | 34.7624063 | 2.7430355 |
| 27 | 34.7833123 | 2.7981620 |
| 28 | 34.8041477 | 2.8531091 |
| 29 | 34.8249583 | 2.9079957 |
| 30 | 34.8457899 | 2.9629437 |
| 31 | 34.8666873 | 3.0180727 |
| 32 | 34.8876987 | 3.0735057 |
| 33 | 34.9088702 | 3.1293681 |
| 34 | 34.9302502 | 3.1857871 |
| 35 | 34.9442315 | 3.1804323 |
| 36 | 34.9581990 | 3.1750834 |
| 37 | 34.9721541 | 3.1697388 |
| 38 | 34.9860992 | 3.1644001 |
| 39 | 35.0000372 | 3.1590640 |
| 40 | 35.0139685 | 3.1537296 |
| 41 | 35.0278955 | 3.1483987 |
| 42 | 35.0418210 | 3.1430694 |
| 43 | 35.0557461 | 3.1377393 |
| 44 | 35.0696735 | 3.1324101 |

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* PHOTO FRAME NUMBER 7 OF 16 *
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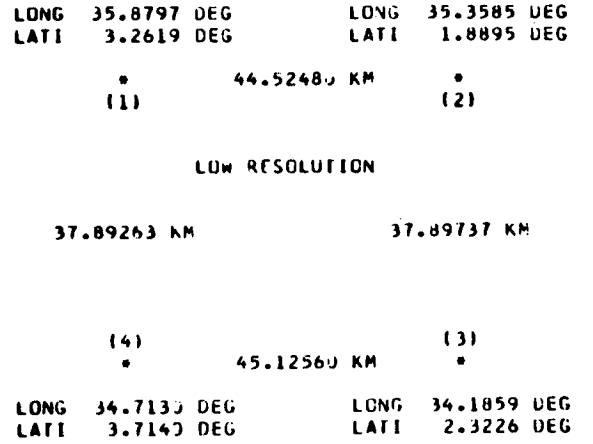
## FRAME 11

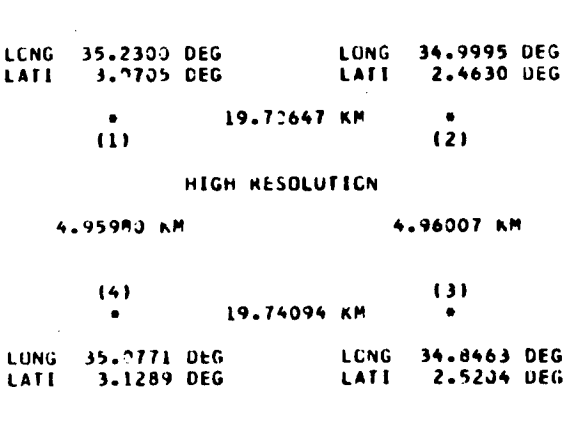
| | YEAR | MONTH | DAY | HOUR | MINUTE | SECOND |
|---|---|---|---|---|---|---|
| GMT | 67 | 2 | 15 | 10 | 0 | 55.599 |

| | | | | | |
|---|---|---|---|---|---|
| LONGITUDE OF NADIR POINT | = | 35.0721346 | DEG | LATITUDE OF NADIR POINT | = | 2.7839125 | DEG |
| LONG OF CAMERA AXIS INTERSECT | = | 35.0383029 | DEG | LATI OF CAMERA AXIS INTERSECT | = | 2.7956749 | DEG |
| SPACECRAFT RADIUS | = | 1792.9730928 | KM | SPACECRAFT ALTITUDE | = | 54.8600964 | KM |
| MEAN ALTITUDE RATE | = | -0.0627137 | KM/SEC | TIME FROM PERIAPSIS | = | -122.8355389 | SEC |
| HORIZONTAL VELOCITY | = | 1.9083577 | KM/SEC | TRUE ANOMALY | = | 352.4875453 | DEG |
| SCALE FACTOR (HIGH) | = | 0.0111131 | M/KM | TILT DISTANCE (HIGH) | = | 11.4327110 | MM |
| SCALE FACTOR (LOW) | = | 0.0014575 | M/KM | TILT DISTANCE (LOW) | = | 1.4993719 | MM |
| IMAGE MOTION COMPENSATION (V/H) | = | 0.0347822 | RAD/SEC | SWING ANGLE | = | 89.5485249 | DEG |
| EMISSION ANGLE | = | 1.1076958 | DEG | INCIDENCE ANGLE | = | 73.8904972 | DEG |
| PHASE ANGLE | = | 74.8378592 | DEG | NORTH DEVIATION ANGLE | = | 339.2524414 | DEG |
| TILT ANGLE | = | 1.0737203 | DEG | RESOLUTION CONSTANT | = | 1.1911140 | MTR |
| TILT AZIMUTH | = | 290.3012848 | DEG | SUN AZIMUTH AT PRINCIPAL GND PT | = | 92.2533770 | DEG |
| SUN ANGLE AT NADIR | = | 75.8582659 | DEG | SUN ARC AT NADIR | = | 2301.1933381 | KM |
| LONGITUDE DISTANCE TO TARGET | = | -0.1798654 | DEG | LATITUDE DISTANCE TO TARGET | = | -0.1330875 | DEG |
| LONGITUDE ARC LENGTH TO TARGET | = | -5.4562864 | KM | LATITUDE ARC LENGTH TO TARGET | = | -4.0372621 | KM |
| FORWARD OVERLAP RATIO | = | 4.1121923 | PCT | SIDE OVERLAP RATIO | = | 0. | PCT |
| TIME BETWEEN PHOTOS | = | 2.5002480 | SEC | ALPHA | = | 1.0523756 | DEG. |

| | X | Y | Z | MAGNITUDE (KM) |
|---|---|---|---|---|
| DIRECTION COSINES TO TARGET | -0.87082355 | -0.49097429 | 0.02471025 | 55.31059837 |
| CAMERA AXIS | -0.80759243 | -0.58836219 | -0.04206836 | 54.89004517 |
| C1 | -0.86044170 | -0.49801513 | 0.10780083 | 55.80299377 |
| C2 | -0.77537717 | -0.59117951 | -0.22202937 | 55.80604553 |
| C3 | -0.72757166 | -0.65904269 | -0.19053140 | 55.90365601 |
| C4 | -0.81263620 | -0.56587832 | 0.13929880 | 55.90058899 |

| | X | Y | Z | X DOT | Y DOT | Z DOT |
|---|---|---|---|---|---|---|
| STATE VECTOR (1950.0) | -617.1509781 | -1584.9410706 | -567.2990952 | 1.6975662 | -0.2956390 | -0.8225747 |



LOW RESOLUTION 11

| INDEX | LONGITUDE | LATITUDE |
|---|---|---|
| 1 | 35.8796654 | 3.2618618 |
| 2 | 35.8278370 | 3.1271116 |
| 3 | 35.7785740 | 2.9986826 |
| 4 | 35.7312112 | 2.8748846 |
| 5 | 35.6851721 | 2.7542430 |
| 6 | 35.6399422 | 2.6354293 |
| 7 | 35.5950403 | 2.5171902 |
| 8 | 35.5500011 | 2.3983014 |
| 9 | 35.5043516 | 2.2775061 |
| 10 | 35.4575944 | 2.1534698 |
| 11 | 35.4091802 | 2.0247088 |
| 12 | 35.3584819 | 1.8895129 |
| 13 | 35.2471452 | 1.9312103 |
| 14 | 35.1393409 | 1.9714700 |
| 15 | 35.0341148 | 2.0106582 |
| 16 | 34.9305978 | 2.0491054 |
| 17 | 34.8279762 | 2.0871171 |
| 18 | 34.7254639 | 2.1249854 |
| 19 | 34.6222792 | 2.1630005 |
| 20 | 34.5176191 | 2.2014510 |
| 21 | 34.4106331 | 2.2406478 |
| 22 | 34.3003945 | 2.2809194 |
| 23 | 34.1858644 | 2.3226331 |
| 24 | 34.2382741 | 2.4592856 |
| 25 | 34.2880898 | 2.5895134 |
| 26 | 34.3359861 | 2.7150360 |
| 27 | 34.3825459 | 2.8373493 |
| 28 | 34.4282899 | 2.9578023 |
| 29 | 34.4737043 | 3.0776695 |
| 30 | 34.5192623 | 3.1981925 |
| 31 | 34.5654411 | 3.3206432 |
| 32 | 34.6127462 | 3.4463819 |
| 33 | 34.6617346 | 3.5769128 |
| 34 | 34.7130404 | 3.7139699 |
| 35 | 34.8266487 | 3.6694849 |
| 36 | 34.9360681 | 3.6267331 |
| 37 | 35.0423245 | 3.5853046 |
| 38 | 35.1463318 | 3.5448382 |
| 39 | 35.2489319 | 3.5049977 |
| 40 | 35.3509216 | 3.4654757 |
| 41 | 35.4530802 | 3.4259682 |
| 42 | 35.5561886 | 3.3861730 |
| 43 | 35.6610618 | 3.3457835 |
| 44 | 35.7685676 | 3.3044659 |

HIGH RESOLUTION 11

| INDEX | LONGITUDE | LATITUDE |
|---|---|---|
| 1 | 35.2300200 | 3.0704577 |
| 2 | 35.2087030 | 3.0143246 |
| 3 | 35.1876006 | 2.9587448 |
| 4 | 35.1666632 | 2.9035885 |
| 5 | 35.1458435 | 2.8487335 |
| 6 | 35.1250949 | 2.7940562 |
| 7 | 35.1043730 | 2.7394377 |
| 8 | 35.0836310 | 2.6847569 |
| 9 | 35.0628238 | 2.6298951 |
| 10 | 35.0419064 | 2.5747311 |
| 11 | 35.0208297 | 2.5191385 |
| 12 | 34.9995465 | 2.4629892 |
| 13 | 34.9856238 | 2.4682092 |
| 14 | 34.9717059 | 2.4734240 |
| 15 | 34.9577889 | 2.4786372 |
| 16 | 34.9438729 | 2.4838512 |
| 17 | 34.9299550 | 2.4890635 |
| 18 | 34.9160328 | 2.4942766 |
| 19 | 34.9021044 | 2.4994915 |
| 20 | 34.8881693 | 2.5047072 |
| 21 | 34.8742237 | 2.5099271 |
| 22 | 34.8602657 | 2.5151497 |
| 23 | 34.8462949 | 2.5203756 |
| 24 | 34.8676367 | 2.5766154 |
| 25 | 34.8887658 | 2.6322994 |
| 26 | 34.9097309 | 2.6875564 |
| 27 | 34.9305797 | 2.7425130 |
| 28 | 34.9513569 | 2.7972886 |
| 29 | 34.9721098 | 2.8520060 |
| 30 | 34.9928832 | 2.9067824 |
| 31 | 35.0137239 | 2.9617407 |
| 32 | 35.0346775 | 3.0170004 |
| 33 | 35.0557895 | 3.0726886 |
| 34 | 35.0771122 | 3.1289335 |
| 35 | 35.0990497 | 3.1236000 |
| 36 | 35.1049738 | 3.1182733 |
| 37 | 35.1188865 | 3.1129517 |
| 38 | 35.1327896 | 3.1076327 |
| 39 | 35.1466866 | 3.1023188 |
| 40 | 35.1605773 | 3.0970066 |
| 41 | 35.1744647 | 3.0916953 |
| 42 | 35.1883507 | 3.0863857 |
| 43 | 35.2022371 | 3.0810778 |
| 44 | 35.2161264 | 3.0757682 |

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* PHOTO FRAME NUMBER 8 OF 16 *
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## FRAME 12

| | YEAR | MONTH | DAY | HOUR | MINUTE | SECOND |
|---|---|---|---|---|---|---|
| GMT | 67 | 2 | 15 | 10 | 0 | 58.100 |

| | | | | | | |
|---|---|---|---|---|---|---|
| LONGITUDE OF NADIR POINT | = | 35.2124672 DEG | LATITUDE OF NADIR POINT | = | 2.7298046 DEG |
| LONG OF CAMERA AXIS INTERSECT | = | 35.1852221 DEG | LATI OF CAMERA AXIS INTERSECT | = | 2.7398313 DEG |
| SPACECRAFT RADIUS | = | 1792.8148956 KM | SPACECRAFT ALTITUDE | = | 54.7248993 KM |
| MEAN ALTITUDE RATE | = | -0.0614451 KM/SEC | TIME FROM PERIAPSIS | = | -120.3358583 SEC |
| HORIZONTAL VELOCITY | = | 1.9085224 KM/SEC | TRUE ANOMALY | = | 352.6399956 DEG |
| SCALE FACTOR (HIGH) | = | 0.0111452 M/KM | TILT DISTANCE (HIGH) | = | 9.8091578 MM |
| SCALE FACTOR (LOW) | = | 0.0114617 M/KM | TILT DISTANCE (LOW) | = | 1.2864469 MM |
| IMAGE MOTION COMPENSATION (V/H) | = | 0.0348837 RAD/SEC | SWING ANGLE | = | 89.4689379 DEG |
| EMISSION ANGLE | = | 0.9502842 DEG | INCIDENCE ANGLE | = | 75.7413187 DEG |
| PHASE ANGLE | = | 74.8378592 DEG | NORTH DEVIATION ANGLE | = | 339.2443924 DEG |
| TILT ANGLE | = | 0.9212703 DEG | RESOLUTION CONSTANT | = | 1.1876886 MIR |
| TILT AZIMUTH | = | 290.2282448 DEG | SUN AZIMUTH AT PRINCIPAL GND PT | = | 92.2478447 DEG |
| SUN ANGLE AT NADIR | = | 75.7137327 DEG | SUN ARC AT NADIR | = | 2296.8058777 KM |
| LONGITUDE DISTANCE TO TARGET | = | -0.0375328 DEG | LATITUDE DISTANCE TO TARGET | = | -0.1871954 DEG |
| LONGITUDE ARC LENGTH TO TARGET | = | -1.1385724 KM | LATITUDE ARC LENGTH TO TARGET | = | -5.6786467 KM |
| FORWARD OVERLAP RATIO | = | 3.8271728 PCT | SIDE OVERLAP RATIO | = | 0. PCT |
| TIME BETWEEN PHOTOS | = | 2.4999261 SEC | ALPHA | = | 0.9032661 DEG. |

| | X | Y | Z | MAGNITUDE (KM) |
|---|---|---|---|---|
| DIRECTION COSINES TO TARGET | -0.82748857 | -0.55871356 | 0.05569399 | 55.04001427 |
| CAMERA AXIS | -0.80750606 | -0.58835723 | -0.04206827 | 54.73219299 |
| C1 | -0.86044475 | -0.49800984 | 0.10783093 | 55.64932251 |
| C2 | -0.77538083 | -0.59117474 | -0.22202928 | 55.65238953 |
| C3 | -0.72757574 | -0.65903822 | -0.19053130 | 55.73588562 |
| C4 | -0.81263965 | -0.56587331 | 0.13929890 | 55.73278809 |

| | X | Y | Z | X DOT | Y DOT | Z DOT |
|---|---|---|---|---|---|---|
| STATE VECTOR (1950.0) | -612.9054337 | -1585.6759491 | -569.3540192 | 1.6988731 | -0.2922666 | -0.8213674 |

LONG 36.0250 DEG
LATI 3.2050 DEG

LONG 35.5046 DEG
LATI 1.8354 DEG

(1) • 44.43821 KM • (2)

LOW RESOLUTION

37.78046 KM 37.78523 KM

(4) • 44.95211 KM • (3)

LONG 34.8614 DEG
LATI 3.6546 DEG

LONG 34.3361 DEG
LATI 2.2687 DEG

LONG 35.3764 DEG
LATI 3.0138 DEG

LONG 35.1465 DEG
LATI 2.4081 DEG

(1) • 19.65223 KM • (2)

HIGH RESOLUTION

4.94528 KM 4.94556 KM

(4) • 19.68168 KM • (3)

LONG 35.2240 DEG
LATI 3.0721 DEG

LONG 34.9938 DEG
LATI 2.4654 DEG

LOW RESOLUTION 12

| INDEX | LONGITUDE | LATITUDE |
|---|---|---|
| 1 | 36.0249500 | 3.2050184 |
| 2 | 35.9732075 | 3.0705380 |
| 3 | 35.9240270 | 2.9423652 |
| 4 | 35.8767428 | 2.8188131 |
| 5 | 35.8307815 | 2.6984122 |
| 6 | 35.7856269 | 2.5798341 |
| 7 | 35.7408009 | 2.4618298 |
| 8 | 35.6958380 | 2.3431775 |
| 9 | 35.6502666 | 2.2226229 |
| 10 | 35.6035891 | 2.0988317 |
| 11 | 35.5552583 | 1.9703251 |
| 12 | 35.5046482 | 1.8353965 |
| 13 | 35.3935018 | 1.8771810 |
| 14 | 35.2859206 | 1.9175107 |
| 15 | 35.1809492 | 1.9567535 |
| 16 | 35.0777178 | 1.9952417 |
| 17 | 34.9754133 | 2.0332815 |
| 18 | 34.8732533 | 2.0711660 |
| 19 | 34.7704582 | 2.1091854 |
| 20 | 34.6662302 | 2.1476300 |
| 21 | 34.5597224 | 2.1868037 |
| 22 | 34.4500179 | 2.2270404 |
| 23 | 34.3360844 | 2.2687028 |
| 24 | 34.3883023 | 2.4048225 |
| 25 | 34.4379368 | 2.5345449 |
| 26 | 34.4856606 | 2.6595800 |
| 27 | 34.5320535 | 2.7814169 |
| 28 | 34.5776348 | 2.9014054 |
| 29 | 34.6228895 | 3.0208048 |
| 30 | 34.6682882 | 3.1408590 |
| 31 | 34.7143064 | 3.2628334 |
| 32 | 34.7614474 | 3.3880820 |
| 33 | 34.8102665 | 3.5181015 |
| 34 | 34.8613963 | 3.6546190 |
| 35 | 34.9745064 | 3.6104576 |
| 36 | 35.0834870 | 3.5680011 |
| 37 | 35.1893539 | 3.5268441 |
| 38 | 35.2930183 | 3.4866262 |
| 39 | 35.3953161 | 3.4470205 |
| 40 | 35.4970393 | 3.4077154 |
| 41 | 35.5989647 | 3.3684127 |
| 42 | 35.7018743 | 3.3288122 |
| 43 | 35.8065786 | 3.2886037 |
| 44 | 35.9139514 | 3.2474586 |

HIGH RESOLUTION 12

| INDEX | LONGITUDE | LATITUDE |
|---|---|---|
| 1 | 35.3764343 | 3.0138354 |
| 2 | 35.3551698 | 2.9578612 |
| 3 | 35.3341188 | 2.9024359 |
| 4 | 35.3132319 | 2.8474349 |
| 5 | 35.2924638 | 2.7927328 |
| 6 | 35.2717671 | 2.7382083 |
| 7 | 35.2510962 | 2.6837435 |
| 8 | 35.2304063 | 2.6292155 |
| 9 | 35.2096515 | 2.5745083 |
| 10 | 35.1887856 | 2.5194971 |
| 11 | 35.1677618 | 2.4640607 |
| 12 | 35.1465321 | 2.4080702 |
| 13 | 35.1326504 | 2.4132825 |
| 14 | 35.1187735 | 2.4184923 |
| 15 | 35.1049004 | 2.4236994 |
| 16 | 35.0910277 | 2.4289074 |
| 17 | 35.0771532 | 2.4341137 |
| 18 | 35.0632753 | 2.4393201 |
| 19 | 35.0493927 | 2.4445272 |
| 20 | 35.0355029 | 2.4497361 |
| 21 | 35.0216041 | 2.4549475 |
| 22 | 35.0076942 | 2.4601632 |
| 23 | 34.9937711 | 2.4653815 |
| 24 | 35.0150542 | 2.5214497 |
| 25 | 35.0361252 | 2.5769637 |
| 26 | 35.0570331 | 2.6320535 |
| 27 | 35.0778241 | 2.6868418 |
| 28 | 35.0985456 | 2.7414509 |
| 29 | 35.1192417 | 2.7960011 |
| 30 | 35.1399593 | 2.8506118 |
| 31 | 35.1607428 | 2.9054019 |
| 32 | 35.1816397 | 2.9604934 |
| 33 | 35.2026958 | 3.0160109 |
| 34 | 35.2239599 | 3.0720833 |
| 35 | 35.2378545 | 3.0667728 |
| 36 | 35.2517366 | 3.0614683 |
| 37 | 35.2656083 | 3.0561672 |
| 38 | 35.2794709 | 3.0508704 |
| 39 | 35.2933278 | 3.0455762 |
| 40 | 35.3071790 | 3.0402853 |
| 41 | 35.3210278 | 3.0349953 |
| 42 | 35.3348756 | 3.0297054 |
| 43 | 35.3487244 | 3.0244171 |
| 44 | 35.3625770 | 3.0191271 |

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* PHOTO FRAME NUMBER 9 OF 16 *
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## FRAME 13

| | YEAR | MONTH | DAY | HOUR | MINUTE | SECOND |
|---|---|---|---|---|---|---|
| GMT | 67 | 2 | 15 | 10 | 1 | 0.499 |

| | | | | | | |
|---|---|---|---|---|---|---|
| LONGITUDE OF NADIR POINT | = | 35.3491697 | DEG | LATITUDE OF NADIR POINT | = | 2.6776132 DEG |
| LONG OF CAMERA AXIS INTERSECT | = | 35.3263044 | DEG | LATI OF CAMERA AXIS INTERSECT | = | 2.6861836 DEG |
| SPACECRAFT RADIUS | = | 1792.6688385 | KM | SPACECRAFT ALTITUDE | = | 54.5788422 KM |
| MEAN ALTITUDE RATE | = | -0.0602289 | KM/SEC | TIME FROM PERIAPSIS | = | -117.9352522 SEC |
| HORIZONTAL VELOCITY | = | 1.9086774 | KM/SEC | TRUE ANOMALY | = | 352.7864380 DEG |
| SCALE FACTOR (HIGH) | = | 0.0111754 | M/KM | TILT DISTANCE (HIGH) | = | 8.2511749 MM |
| SCALE FACTOR (LOW) | = | 0.0014656 | M/KM | TILT DISTANCE (LOW) | = | 1.0821213 MM |
| IMAGE MOTION COMPENSATION (V/H) | = | 0.0349794 | RAD/SEC | SWING ANGLE | = | 89.3625813 DEG |
| EMISSION ANGLE | = | 0.7993575 | DEG | INCIDENCE ANGLE | = | 75.5980625 DEG |
| PHASE ANGLE | = | 74.8378592 | DEG | NORTH DEVIATION ANGLE | = | 339.2369308 DEG |
| TILT ANGLE | = | 0.7749650 | DEG | RESOLUTION CONSTANT | = | 1.1844728 MTR |
| TILT AZIMUTH | = | 290.1282692 | DEG | SUN AZIMUTH AT PRINCIPAL GND PT | = | 92.2422590 DEG |
| SUN ANGLE AT NADIR | = | 75.5749111 | DEG | SUN ARC AT NADIR | = | 2292.5946655 KM |
| LONGITUDE DISTANCE TO TARGET | = | 0.0991697 | DEG | LATITUDE DISTANCE TO TARGET | = | -0.2391868 DEG |
| LONGITUDE ARC LENGTH TO TARGET | = | 3.0083528 | KM | LATITUDE ARC LENGTH TO TARGET | = | -7.2558264 KM |
| FORWARD OVERLAP RATIO | = | 7.3812606 | PCT | SIDE OVERLAP RATIO | = | 0. PCT |
| TIME BETWEEN PHOTOS | = | 2.3998260 | SEC | ALPHA | = | 0.7600658 DEG. |

| | X | Y | Z | MAGNITUDE (KM) |
|---|---|---|---|---|
| DIRECTION COSINES TO TARGET | -0.77994871 | -0.62302255 | 0.08515894 | 55.15841722 |
| CAMERA AXIS | -0.80750957 | -0.58835241 | -0.04206818 | 54.58399963 |
| C1 | -0.86044770 | -0.49800470 | 0.10780103 | 55.50515747 |
| C2 | -0.77538437 | -0.59117013 | -0.22202919 | 55.50825500 |
| C3 | -0.72757968 | -0.65903389 | -0.19053121 | 55.57826233 |
| C4 | -0.81264302 | -0.56586847 | 0.13929900 | 55.57516479 |

| | X | Y | Z | X DOT | Y DOT | Z DOT |
|---|---|---|---|---|---|---|
| STATE VECTOR (1950.0) | -608.8249359 | -1586.3737946 | -571.3247299 | 1.7001200 | -0.2890254 | -0.8202035 |

LONG 36.1645 DEG
LATI 3.1504 DEG

LONG 35.6450 DEG
LATI 1.7834 DEG

(1) • 44.35767 KM • (2)

LOW RESOLUTION

37.67550 KM 37.68030 KM

(4) • 44.78863 KM • (3)

LONG 35.0038 DEG
LATI 3.5977 DEG

LONG 34.4803 DEG
LATI 2.2169 DEG

LONG 35.5170 DEG
LATI 2.9595 DEG

LONG 35.2877 DEG
LATI 2.3553 DEG

(1) • 19.63130 KM • (2)

HIGH RESOLUTION

4.93167 KM 4.93194 KM

(4) • 19.62602 KM • (3)

LONG 35.3650 DEG
LATI 3.0175 DEG

LONG 35.1354 DEG
LATI 2.4125 DEG

LOW RESOLUTION 13

| INDEX | LONGITUDE | LATITUDE |
|---|---|---|
| 1 | 36.1645160 | 3.1504366 |
| 2 | 36.1128531 | 3.0162064 |
| 3 | 36.0637479 | 2.8882735 |
| 4 | 36.0165372 | 2.7649519 |
| 5 | 35.9706473 | 2.6447738 |
| 6 | 35.9255633 | 2.5264152 |
| 7 | 35.8808074 | 2.4086294 |
| 8 | 35.8359160 | 2.2901957 |
| 9 | 35.7904172 | 2.1698631 |
| 10 | 35.7438149 | 2.0462999 |
| 11 | 35.6955605 | 1.9180306 |
| 12 | 35.6450338 | 1.7833530 |
| 13 | 35.5340619 | 1.8252220 |
| 14 | 35.4266872 | 1.8656200 |
| 15 | 35.3219519 | 1.9049175 |
| 16 | 35.2189884 | 1.9434475 |
| 17 | 35.1169829 | 1.9815164 |
| 18 | 35.0151534 | 2.0194197 |
| 19 | 34.9127245 | 2.0574442 |
| 20 | 34.8089018 | 2.0958811 |
| 21 | 34.7028456 | 2.1350386 |
| 22 | 34.5936437 | 2.1752428 |
| 23 | 34.4802747 | 2.2168574 |
| 24 | 34.5323105 | 2.3524767 |
| 25 | 34.5817733 | 2.4817210 |
| 26 | 34.6293344 | 2.6062968 |
| 27 | 34.6755705 | 2.7276872 |
| 28 | 34.7209992 | 2.8472343 |
| 29 | 34.7661028 | 2.9661949 |
| 30 | 34.8113503 | 3.0858077 |
| 31 | 34.8572168 | 3.2073330 |
| 32 | 34.9042044 | 3.3321188 |
| 33 | 34.9528646 | 3.4616559 |
| 34 | 35.0038266 | 3.5976655 |
| 35 | 35.1164680 | 3.5538105 |
| 36 | 35.2250361 | 3.5116333 |
| 37 | 35.3305392 | 3.4707324 |
| 38 | 35.4338813 | 3.4307519 |
| 39 | 35.5358944 | 3.3913665 |
| 40 | 35.6373692 | 3.3522687 |
| 41 | 35.7390780 | 3.3131591 |
| 42 | 35.8418031 | 3.2737412 |
| 43 | 35.9463539 | 3.2337052 |
| 44 | 36.0536041 | 3.1927232 |

HIGH RESOLUTION 13

| INDEX | LONGITUDE | LATITUDE |
|---|---|---|
| 1 | 35.5170431 | 2.9594569 |
| 2 | 35.4958272 | 2.9036295 |
| 3 | 35.4748244 | 2.8483511 |
| 4 | 35.4539871 | 2.7934952 |
| 5 | 35.4332681 | 2.7389365 |
| 6 | 35.4126191 | 2.6845571 |
| 7 | 35.3919954 | 2.6302341 |
| 8 | 35.3713536 | 2.5758513 |
| 9 | 35.3506474 | 2.5212857 |
| 10 | 35.3298302 | 2.4664205 |
| 11 | 35.3088560 | 2.4111293 |
| 12 | 35.2876754 | 2.3552865 |
| 13 | 35.2738338 | 2.3604937 |
| 14 | 35.2599969 | 2.3656983 |
| 15 | 35.2461624 | 2.3709003 |
| 16 | 35.2323303 | 2.3761024 |
| 17 | 35.2184973 | 2.3813019 |
| 18 | 35.2046609 | 2.3865030 |
| 19 | 35.1908212 | 2.3917042 |
| 20 | 35.1769738 | 2.3969063 |
| 21 | 35.1631188 | 2.4021117 |
| 22 | 35.1492534 | 2.4073198 |
| 23 | 35.1353755 | 2.4125312 |
| 24 | 35.1566033 | 2.4684371 |
| 25 | 35.1776199 | 2.5237933 |
| 26 | 35.1984739 | 2.5787251 |
| 27 | 35.2192111 | 2.6333555 |
| 28 | 35.2398791 | 2.6878083 |
| 29 | 35.2605233 | 2.7422022 |
| 30 | 35.2811875 | 2.7966542 |
| 31 | 35.3019185 | 2.8512872 |
| 32 | 35.3227615 | 2.9062207 |
| 33 | 35.3437648 | 2.9615794 |
| 34 | 35.3649755 | 3.0174896 |
| 35 | 35.3788285 | 3.0122004 |
| 36 | 35.3926721 | 3.0069147 |
| 37 | 35.4065046 | 3.0016342 |
| 38 | 35.4203291 | 2.9963578 |
| 39 | 35.4341478 | 2.9910832 |
| 40 | 35.4479628 | 2.9858120 |
| 41 | 35.4617753 | 2.9805417 |
| 42 | 35.4755869 | 2.9752705 |
| 43 | 35.4894013 | 2.9700010 |
| 44 | 35.5032187 | 2.9647289 |

**********
* PHOTO FRAME NUMBER 10 OF 16 *
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## FRAME 14

| | YEAR | MONTH | DAY | HOUR | MINUTE | SECOND |
|---|---|---|---|---|---|---|
| GMT | 67 | 2 | 15 | 10 | 1 | 2.999 |

| | | | | | |
|---|---|---|---|---|---|
| LONGITUDE OF NADIR POINT | = | 35.4915223 | DEG | LATITUDE OF NADIR POINT | = 2.6236540 DEG |
| LONG OF CAMERA AXIS INTERSECT | = | 35.4731908 | DEG | LATI OF CAMERA AXIS INTERSECT | = 2.6303075 DEG |
| SPACECRAFT RADIUS | = | 1792.5198364 | KM | SPACECRAFT ALTITUDE | = 54.4298401 KM |
| MEAN ALTITUDE RATE | = | -0.0589621 | KM/SEC | TIME FROM PERIAPSIS | = -115.4355621 SEC |
| HORIZONTAL VELOCITY | = | 1.9088355 | KM/SEC | TRUE ANOMALY | = 352.9389381 DEG |
| SCALE FACTOR (HIGH) | = | 0.0112064 | M/KM | TILT DISTANCE (HIGH) | = 6.6270720 MM |
| SCALE FACTOR (LOW) | = | 0.0014697 | M/KM | TILT DISTANCE (LOW) | = 0.8691242 MM |
| IMAGE MOTION COMPENSATION (V/H) | = | 0.0350772 | RAD/SEC | SWING ANGLE | = 89.1982288 DEG |
| EMISSION ANGLE | = | 0.6419776 | DEG | INCIDENCE ANGLE | = 75.4489088 DEG |
| PHASE ANGLE | = | 74.8378601 | DEG | NORTH DEVIATION ANGLE | = 339.2294502 DEG |
| TILT ANGLE | = | 0.6224399 | DEG | RESOLUTION CONSTANT | = 1.1811994 MIR |
| TILT AZIMUTH | = | 289.9708214 | DEG | SUN AZIMUTH AT PRINCIPAL GND PT | = 92.2361555 DEG |
| SUN ANGLE AT NADIR | = | 75.4303513 | DEG | SUN ARC AT NADIR | = 2286.2093811 KM |
| LONGITUDE DISTANCE TO TARGET | = | 0.2415223 | DEG | LATITUDE DISTANCE TO TARGET | = -0.2933460 DEG |
| LONGITUDE ARC LENGTH TO TARGET | = | 7.3266743 | KM | LATITUDE ARC LENGTH TO TARGET | = -8.8987650 KM |
| FORWARD OVERLAP RATIO | = | 3.2884799 | PCT | SIDE OVERLAP RATIO | = 0. PCT |
| TIME BETWEEN PHOTOS | = | 2.4999261 | SEC | ALPHA | = 0.6139592 DEG. |

| | X | Y | Z | MAGNITUDE (KM) |
|---|---|---|---|---|
| DIRECTION COSINES TO TARGET | -0.72539170 | -0.67867895 | 0.11489887 | 55.67317200 |
| CAMERA AXIS | -0.80751321 | -0.58834742 | -0.04206807 | 54.43315125 |
| C1 | -0.86045078 | -0.49799938 | 0.10780113 | 55.35852051 |
| C2 | -0.77538805 | -0.59116533 | -0.22202909 | 55.36164856 |
| C3 | -0.72758377 | -0.65902940 | -0.19053112 | 55.41772461 |
| C4 | -0.81264649 | -0.56586345 | 0.13929910 | 55.41459656 |

| | X | Y | Z | X DOT | Y DOT | Z DOT |
|---|---|---|---|---|---|---|
| STATE VECTOR (1950.0) | -604.5730209 | -1587.0921326 | -573.3737183 | 1.7014098 | -0.2856483 | -0.8189871 |

LONG 36.3099 DEG
LATI 3.0936 DEG

LONG 35.7912 DEG
LATI 1.7291 DEG

(1) • 44.27648 KM • (2)

LOW RESOLUTION

37.56903 KM 37.57387 KM

(4) • 44.62159 KM • (3)

LONG 35.1521 DEG
LATI 3.5384 DEG

LONG 34.6403 DEG
LATI 2.1628 DEG

LONG 35.4634 DEG
LATI 2.9028 DEG

LONG 35.4346 DEG
LATI 2.3003 DEG

(1) • 19.54952 KM • (2)

HIGH RESOLUTION

4.91795 KM 4.91813 KM

(4) • 19.56932 KM • (3)

LONG 35.5118 DEG
LATI 2.9606 DEG

LONG 35.2828 DEG
LATI 2.3575 DEG

LOW RESOLUTION 14

| INDEX | LONGITUDE | LATITUDE |
|---|---|---|
| 1 | 36.3098783 | 3.0936163 |
| 2 | 36.2582951 | 2.9596396 |
| 3 | 36.2092662 | 2.8319475 |
| 4 | 36.1621289 | 2.7088572 |
| 5 | 36.1163111 | 2.5889046 |
| 6 | 36.0712986 | 2.4707671 |
| 7 | 36.0266142 | 2.3532016 |
| 8 | 35.9817939 | 2.2349890 |
| 9 | 35.9363680 | 2.1148809 |
| 10 | 35.8898401 | 1.9915491 |
| 11 | 35.8416657 | 1.8635189 |
| 12 | 35.7912207 | 1.7290914 |
| 13 | 35.6804237 | 1.7710509 |
| 14 | 35.5732570 | 1.8115232 |
| 15 | 35.4687614 | 1.8508796 |
| 16 | 35.3660679 | 1.8894540 |
| 17 | 35.2643642 | 1.9275562 |
| 18 | 35.1628723 | 1.9654783 |
| 19 | 35.0608172 | 2.0035113 |
| 20 | 34.9574089 | 2.0419439 |
| 21 | 34.8518138 | 2.0810835 |
| 22 | 34.7431245 | 2.1212552 |
| 23 | 34.6303315 | 2.1628238 |
| 24 | 34.6821823 | 2.2979300 |
| 25 | 34.7314706 | 2.4266868 |
| 26 | 34.7788649 | 2.5507939 |
| 27 | 34.8249412 | 2.6717275 |
| 28 | 34.8702121 | 2.7908238 |
| 29 | 34.9151621 | 2.9093378 |
| 30 | 34.9602571 | 3.0284990 |
| 31 | 35.0059681 | 3.1495650 |
| 32 | 35.0527968 | 3.2738778 |
| 33 | 35.1012940 | 3.4029223 |
| 34 | 35.1520872 | 3.5384127 |
| 35 | 35.2642484 | 3.4948720 |
| 36 | 35.3723955 | 3.4529807 |
| 37 | 35.4775281 | 3.4123428 |
| 38 | 35.5805435 | 3.3726073 |
| 39 | 35.6822686 | 3.3334481 |
| 40 | 35.7834911 | 3.2945613 |
| 41 | 35.8849821 | 3.2556514 |
| 42 | 35.9875202 | 3.2164205 |
| 43 | 36.0919189 | 3.1765613 |
| 44 | 36.1990499 | 3.1357466 |

HIGH RESOLUTION 14

| INDEX | LONGITUDE | LATITUDE |
|---|---|---|
| 1 | 35.6634483 | 2.9028372 |
| 2 | 35.6422825 | 2.8471600 |
| 3 | 35.6213298 | 2.7920302 |
| 4 | 35.6005411 | 2.7373212 |
| 5 | 35.5798697 | 2.6829102 |
| 6 | 35.5592709 | 2.6286759 |
| 7 | 35.5386963 | 2.5744997 |
| 8 | 35.5181041 | 2.5202612 |
| 9 | 35.4974465 | 2.4658434 |
| 10 | 35.4766798 | 2.4111250 |
| 11 | 35.4557552 | 2.3559824 |
| 12 | 35.4346266 | 2.3002873 |
| 13 | 35.4208231 | 2.3054910 |
| 14 | 35.4070258 | 2.3106905 |
| 15 | 35.3932333 | 2.3158883 |
| 16 | 35.3794417 | 2.3210827 |
| 17 | 35.3656502 | 2.3262770 |
| 18 | 35.3518577 | 2.3314714 |
| 19 | 35.3380594 | 2.3366666 |
| 20 | 35.3242574 | 2.3418635 |
| 21 | 35.3104467 | 2.3470613 |
| 22 | 35.2966251 | 2.3522625 |
| 23 | 35.2827935 | 2.3574671 |
| 24 | 35.3039656 | 2.4132099 |
| 25 | 35.3249264 | 2.4684030 |
| 26 | 35.3457251 | 2.5231717 |
| 27 | 35.3664079 | 2.5776442 |
| 28 | 35.3870220 | 2.6319365 |
| 29 | 35.4076114 | 2.6861699 |
| 30 | 35.4282227 | 2.7404639 |
| 31 | 35.4488993 | 2.7949364 |
| 32 | 35.4696884 | 2.8497086 |
| 33 | 35.4906368 | 2.9049033 |
| 34 | 35.5117927 | 2.9606496 |
| 35 | 35.5256057 | 2.9553810 |
| 36 | 35.5394082 | 2.9501174 |
| 37 | 35.5532017 | 2.9448574 |
| 38 | 35.5669880 | 2.9396015 |
| 39 | 35.5807686 | 2.9343474 |
| 40 | 35.5945458 | 2.9290950 |
| 41 | 35.6083212 | 2.9238443 |
| 42 | 35.6220975 | 2.9185936 |
| 43 | 35.6358752 | 2.9133429 |
| 44 | 35.6496582 | 2.9080904 |

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* PHOTO FRAME NUMBER 11 OF 16 *
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## FRAME 15

| | YEAR | MONTH | DAY | HOUR | MINUTE | SECOND |
|---|---|---|---|---|---|---|
| GMT | 67 | 2 | 15 | 10 | 1 | 5.400 |

| | | | | | |
|---|---|---|---|---|---|
| LONGITUDE OF NADIR POINT | = | 35.6281304 | DEG | LATITUDE OF NADIR POINT | = 2.5716584 DEG |
| LONG OF CAMERA AXIS INTERSECT | = | 35.6141257 | DEG | LATI OF CAMERA AXIS INTERSECT | = 2.5766734 DEG |
| SPACECRAFT RADIUS | = | 1792.3798523 | KM | SPACECRAFT ALTITUDE | = 54.2898560 KM |
| MEAN ALTITUDE RATE | = | -0.0577458 | KM/SEC | TIME FROM PERIAPSIS | = -113.0369596 SEC |
| HORIZONTAL VELOCITY | = | 1.9089841 | KM/SEC | TRUE ANOMALY | = 353.0853004 DEG |
| SCALE FACTOR (HIGH) | = | 0.0112356 | M/KM | TILT DISTANCE (HIGH) | = 5.0707206 MM |
| SCALE FACTOR (LOW) | = | 0.0014735 | M/KM | TILT DISTANCE (LOW) | = 0.6650125 MM |
| IMAGE MOTION COMPENSATION (V/H) | = | 0.0351692 | RAD/SEC | SWING ANGLE | = 88.9417191 DEG |
| EMISSION ANGLE | = | 0.4912353 | DEG | INCIDENCE ANGLE | = 75.3057966 DEG |
| PHASE ANGLE | = | 74.8378611 | DEG | NORTH DEVIATION ANGLE | = 339.2225342 DEG |
| TILT ANGLE | = | 0.4762692 | DEG | RESOLUTION CONSTANT | = 1.1781323 MTR |
| TILT AZIMUTH | = | 289.7206306 | DEG | SUN AZIMUTH AT PRINCIPAL GND PT | = 92.2300243 DEG |
| SUN ANGLE AT NADIR | = | 75.2916222 | DEG | SUN ARC AT NADIR | = 2284.0010071 KM |
| LONGITUDE DISTANCE TO TARGET | = | 0.3781304 | DEG | LATITUDE DISTANCE TO TARGET | = -0.3453416 DEG |
| LONGITUDE ARC LENGTH TO TARGET | = | 11.4707354 | KM | LATITUDE ARC LENGTH TO TARGET | = -10.4760739 KM |
| FORWARD OVERLAP RATIO | = | 6.9503697 | PCT | SIDE OVERLAP RATIO | = 0. PCT |
| TIME BETWEEN PHOTOS | = | 2.4001479 | SEC | ALPHA | = 0.4678844 DEG. |

| | X | Y | Z | MAGNITUDE (KM) |
|---|---|---|---|---|
| DIRECTION COSINES TO TARGET | -0.66949429 | -0.72311665 | 0.14200816 | 56.53257465 |
| CAMERA AXIS | -0.80751673 | -0.58834260 | -0.04206797 | 54.29180908 |
| C1 | -0.86045373 | -0.49799424 | 0.10780123 | 55.22126770 |
| C2 | -0.77539160 | -0.59116071 | -0.22202899 | 55.22439575 |
| C3 | -0.72758773 | -0.65902505 | -0.19053103 | 55.26716614 |
| C4 | -0.81264986 | -0.56585858 | 0.13929919 | 55.26400757 |

| | X | Y | Z | X DOT | Y DOT | Z DOT |
|---|---|---|---|---|---|---|
| STATE VECTOR (1950.0) | -600.4898682 | -1587.7735138 | -575.3370590 | 1.7026393 | -0.2824054 | -0.8178154 |

LONG 36.4494 DEG
LATI 3.0391 DEG

(1)

44.20120 KM

LONG 35.9315 DEG
LATI 1.6770 DEG

(2)

LOW RESOLUTION

37.46961 KM

37.47446 KM

(4)

44.46439 KM

(3)

LONG 35.2943 DEG
LATI 3.4816 DEG

LONG 34.7742 DEG
LATI 2.1109 DEG

LONG 35.8039 DEG
LATI 2.8485 DEG

(1)

19.30105 KM

LONG 35.5756 DEG
LATI 2.2475 DEG

(2)

HIGH RESOLUTION

4.90494 KM

4.90522 KM

(4)

19.51615 KM

(3)

LONG 35.6527 DEG
LATI 2.9061 DEG

LONG 35.4242 DEG
LATI 2.3046 DEG

LOW RESOLUTION 15

| INDEX | LONGITUDE | LATITUDE |
|---|---|---|
| 1 | 36.4494047 | 3.0391054 |
| 2 | 36.3978944 | 2.9053635 |
| 3 | 36.3489361 | 2.7778934 |
| 4 | 36.3018675 | 2.6550174 |
| 5 | 36.2561164 | 2.5352740 |
| 6 | 36.2111688 | 2.4173422 |
| 7 | 36.1665511 | 2.2999808 |
| 8 | 36.1217971 | 2.1819730 |
| 9 | 36.0764384 | 2.0620733 |
| 10 | 36.0299811 | 1.9389549 |
| 11 | 35.9818783 | 1.8111459 |
| 12 | 35.9315104 | 1.6769514 |
| 13 | 35.8208733 | 1.7190015 |
| 14 | 35.7138991 | 1.7595463 |
| 15 | 35.6096258 | 1.7989608 |
| 16 | 35.5071845 | 1.8375795 |
| 17 | 35.4057651 | 1.8757151 |
| 18 | 35.3045874 | 1.9136585 |
| 19 | 35.2028837 | 1.9516992 |
| 20 | 35.0998650 | 1.9901310 |
| 21 | 34.9947023 | 2.0292543 |
| 22 | 34.8864980 | 2.0693987 |
| 23 | 34.7742476 | 2.1109228 |
| 24 | 34.8259225 | 2.2455467 |
| 25 | 34.8750472 | 2.3738458 |
| 26 | 34.9222851 | 2.4975107 |
| 27 | 34.9682093 | 2.6180140 |
| 28 | 35.0133338 | 2.7366877 |
| 29 | 35.0581379 | 2.8547800 |
| 30 | 35.1030869 | 2.9735160 |
| 31 | 35.1486535 | 3.0941508 |
| 32 | 35.1953325 | 3.2180180 |
| 33 | 35.2436767 | 3.3465997 |
| 34 | 35.2943096 | 3.4816018 |
| 35 | 35.4060206 | 3.4383582 |
| 36 | 35.5137730 | 3.3967384 |
| 37 | 35.6185575 | 3.3563489 |
| 38 | 35.7212658 | 3.3168423 |
| 39 | 35.8227220 | 3.2778974 |
| 40 | 35.9237099 | 3.2392112 |
| 41 | 36.0249987 | 3.2004891 |
| 42 | 36.1273656 | 3.1614349 |
| 43 | 36.2316241 | 3.1217430 |
| 44 | 36.3386474 | 3.0810863 |

HIGH RESOLUTION 15

| INDEX | LONGITUDE | LATITUDE |
|---|---|---|
| 1 | 35.8039327 | 2.8485047 |
| 2 | 35.7828140 | 2.7929685 |
| 3 | 35.7619081 | 2.7379786 |
| 4 | 35.7411656 | 2.6834080 |
| 5 | 35.7205400 | 2.6291336 |
| 6 | 35.6999865 | 2.5750368 |
| 7 | 35.6794581 | 2.5209955 |
| 8 | 35.6589112 | 2.4668944 |
| 9 | 35.6383004 | 2.4126140 |
| 10 | 35.6175799 | 2.3580331 |
| 11 | 35.5967035 | 2.3030296 |
| 12 | 35.5756216 | 2.2474754 |
| 13 | 35.5618558 | 2.2526740 |
| 14 | 35.5480957 | 2.2578684 |
| 15 | 35.5343404 | 2.2630610 |
| 16 | 35.5205879 | 2.2682520 |
| 17 | 35.5068350 | 2.2734412 |
| 18 | 35.4930816 | 2.2786296 |
| 19 | 35.4793258 | 2.2838188 |
| 20 | 35.4655633 | 2.2890089 |
| 21 | 35.4517941 | 2.2942016 |
| 22 | 35.4380159 | 2.2993951 |
| 23 | 35.4242263 | 2.3045937 |
| 24 | 35.4453459 | 2.3601821 |
| 25 | 35.4662547 | 2.4152232 |
| 26 | 35.4870019 | 2.4698425 |
| 27 | 35.5076346 | 2.5241629 |
| 28 | 35.5281968 | 2.5783059 |
| 29 | 35.5487356 | 2.6323907 |
| 30 | 35.5692959 | 2.6865336 |
| 31 | 35.5899224 | 2.7408567 |
| 32 | 35.6106606 | 2.7954769 |
| 33 | 35.6315575 | 2.8505196 |
| 34 | 35.6526618 | 2.9061114 |
| 35 | 35.6664371 | 2.9008624 |
| 36 | 35.6802025 | 2.8956194 |
| 37 | 35.6939588 | 2.8903781 |
| 38 | 35.7077093 | 2.8851410 |
| 39 | 35.7214541 | 2.8799065 |
| 40 | 35.7351966 | 2.8746729 |
| 41 | 35.7489371 | 2.8694401 |
| 42 | 35.7626801 | 2.8642090 |
| 43 | 35.7764254 | 2.8589745 |
| 44 | 35.7901754 | 2.8537409 |

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* PHOTO FRAME NUMBER 12 OF 16 *
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## FRAME 16

| | YEAR | MONTH | DAY | HOUR | MINUTE | SECOND |
|---|---|---|---|---|---|---|
| GMT | 67 | 2 | 15 | 10 | 1 | 7.899 |

| | | | | | |
|---|---|---|---|---|---|
| LONGITUDE OF NADIR POINT | = | 35.7705069 | DEG | LATITUDE OF NADIR POINT | = 2.5174497 DEG |
| LONG OF CAMERA AXIS INTERSECT | = | 35.7609868 | DEG | LATI OF CAMERA AXIS INTERSECT | = 2.5207641 DEG |
| SPACECRAFT RADIUS | = | 1792.2370635 | KM | SPACECRAFT ALTITUDE | = 94.1473642 KM |
| MEAN ALTITUDE RATE | = | -0.0364777 | KM/SEC | TIME FROM PERIAPSIS | = -110.5372801 SEC |
| HORIZONTAL VELOCITY | = | 1.9091356 | KM/SEC | TRUE ANOMALY | = 353.2378543 DEG |
| SCALE FACTOR (HIGH) | = | 0.0112654 | M/KM | TILT DISTANCE (HIGH) | = 3.4503337 MM |
| SCALE FACTOR (LOW) | = | 0.0014774 | M/KM | TILT DISTANCE (LOW) | = 0.4525328 MM |
| IMAGE MOTION COMPENSATION (V/H) | = | 0.0352631 | RAD/SEC | SWING ANGLE | = 88.4277983 DEG |
| EMISSION ANGLE | = | 0.3341845 | DEG | INCIDENCE ANGLE | = 75.1566706 DEG |
| PHASE ANGLE | = | 74.8378630 | DEG | NORTH DEVIATION ANGLE | = 339.2156105 DEG |
| TILT ANGLE | = | 0.3240778 | DEG | RESOLUTION CONSTANT | = 1.1750165 MTR |
| TILT AZIMUTH | = | 289.2125206 | DEG | SUN AZIMUTH AT PRINCIPAL GND PT | = 92.2233486 DEG |
| SUN ANGLE AT NADIR | = | 75.1470385 | DEG | SUN ARC AT NADIR | = 2279.6145962 KM |
| LONGITUDE DISTANCE TO TARGET | = | 0.5235069 | DEG | LATITUDE DISTANCE TO TARGET | = -0.3995503 DEG |
| LONGITUDE ARC LENGTH TO TARGET | = | 15.7897804 | KM | LATITUDE ARC LENGTH TO TARGET | = -12.1205142 KM |
| FORWARD OVERLAP RATIO | = | 2.7665964 | PCT | SIDE OVERLAP RATIO | = 0. PCT |
| TIME BETWEEN PHOTOS | = | 2.4999261 | SEC | ALPHA | = 0.3187840 DEG. |

| | X | Y | Z | MAGNITUDE (KM) |
|---|---|---|---|---|
| DIRECTION COSINES TO TARGET | -0.60903476 | -0.77507368 | 0.16833730 | 57.79173704 |
| CAMERA AXIS | -0.80752033 | -0.58833767 | -0.04206789 | 54.14794922 |
| C1 | -0.86045676 | -0.49798898 | 0.10780132 | 55.08168030 |
| C2 | -0.77533523 | -0.59115598 | -0.22202891 | 55.08485413 |
| C3 | -0.72759177 | -0.65902061 | -0.19053094 | 55.11383057 |
| C4 | -0.81265330 | -0.56585361 | 0.13929927 | 55.11065674 |

| | X | Y | Z | X DOT | Y DOT | Z DOT |
|---|---|---|---|---|---|---|
| STATE VECTOR (1950.0) | -596.2316742 | -1588.4752960 | -577.3800735 | 1.7039119 | -0.2790237 | -0.8165899 |

LONG 36.5949 DEG
LATI 2.9823 DEG

(1) • 44.12545 KM • (2)

LONG 36.0777 DEG
LATI 1.6225 DEG

LOW RESOLUTION

37.36880 KM 37.37371 KM

(4) • 44.30375 KM • (3)

LONG 35.4425 DEG
LATI 3.4224 DEG

LONG 34.9241 DEG
LATI 2.0568 DEG

LONG 35.9503 DEG
LATI 2.7919 DEG

(1) • 19.45177 KM • (2)

LONG 35.7225 DEG
LATI 2.1924 DEG

HIGH RESOLUTION

4.89194 KM 4.89212 KM

(4) • 19.46200 KM • (3)

LONG 35.7995 DEG
LATI 2.8493 DEG

LONG 35.5716 DEG
LATI 2.2495 DEG

LOW RESOLUTION 16

| INDEX | LONGITUDE | LATITUDE |
|---|---|---|
| 1 | 36.5948515 | 2.9823107 |
| 2 | 36.5434155 | 2.8488044 |
| 3 | 36.4945288 | 2.7215597 |
| 4 | 36.4475274 | 2.5988997 |
| 5 | 36.4018435 | 2.4793663 |
| 6 | 36.3569627 | 2.3616420 |
| 7 | 36.3124104 | 2.2444855 |
| 8 | 36.2677226 | 2.1266835 |
| 9 | 36.2224331 | 2.0069938 |
| 10 | 36.1760454 | 1.8840914 |
| 11 | 36.1280165 | 1.7565052 |
| 12 | 36.0777254 | 1.6225447 |
| 13 | 35.9672475 | 1.6646895 |
| 14 | 35.8604650 | 1.7053138 |
| 15 | 35.7564163 | 1.7447897 |
| 16 | 35.6542315 | 1.7834588 |
| 17 | 35.5530992 | 1.8216285 |
| 18 | 35.4522438 | 1.8595958 |
| 19 | 35.3508973 | 1.8976485 |
| 20 | 35.2482762 | 1.9360777 |
| 21 | 35.1435556 | 1.9751891 |
| 22 | 35.0358453 | 2.0153053 |
| 23 | 34.9241500 | 2.0567868 |
| 24 | 34.9756470 | 2.1909180 |
| 25 | 35.0246034 | 2.3187484 |
| 26 | 35.0716810 | 2.4419616 |
| 27 | 35.1174507 | 2.5620261 |
| 28 | 35.1624250 | 2.6802661 |
| 29 | 35.2070808 | 2.7979280 |
| 30 | 35.2518821 | 2.9162303 |
| 31 | 35.2972975 | 3.0364229 |
| 32 | 35.3438263 | 3.1598367 |
| 33 | 35.3920126 | 3.2879454 |
| 34 | 35.4424820 | 3.4224472 |
| 35 | 35.5537338 | 3.3795092 |
| 36 | 35.6610818 | 3.3381670 |
| 37 | 35.7655120 | 3.2980345 |
| 38 | 35.8679090 | 3.2587643 |
| 39 | 35.9690928 | 3.2200380 |
| 40 | 36.0698438 | 3.1815584 |
| 41 | 36.1709285 | 3.1430285 |
| 42 | 36.2731242 | 3.1041561 |
| 43 | 36.3772440 | 3.0646349 |
| 44 | 36.4841633 | 3.0241388 |

HIGH RESOLUTION 16

| INDEX | LONGITUDE | LATITUDE |
|---|---|---|
| 1 | 35.9503369 | 2.7918867 |
| 2 | 35.9292660 | 2.7364931 |
| 3 | 35.9084072 | 2.6816449 |
| 4 | 35.8877110 | 2.6272151 |
| 5 | 35.8671327 | 2.5730799 |
| 6 | 35.8466258 | 2.5191214 |
| 7 | 35.8261433 | 2.4652201 |
| 8 | 35.8056440 | 2.4112574 |
| 9 | 35.7850809 | 2.3571170 |
| 10 | 35.7644072 | 2.3026761 |
| 11 | 35.7435789 | 2.2478135 |
| 12 | 35.7225456 | 2.1924019 |
| 13 | 35.7088165 | 2.1975963 |
| 14 | 35.6950941 | 2.2027863 |
| 15 | 35.6813779 | 2.2079739 |
| 16 | 35.6676645 | 2.2131588 |
| 17 | 35.6539512 | 2.2183430 |
| 18 | 35.6402383 | 2.2235262 |
| 19 | 35.6265225 | 2.2287103 |
| 20 | 35.6128030 | 2.2338936 |
| 21 | 35.5990748 | 2.2390803 |
| 22 | 35.5853405 | 2.2442678 |
| 23 | 35.5715947 | 2.2494587 |
| 24 | 35.5926604 | 2.3048917 |
| 25 | 35.6135163 | 2.3597782 |
| 26 | 35.6342106 | 2.4142430 |
| 27 | 35.6547914 | 2.4684115 |
| 28 | 35.6753020 | 2.5224016 |
| 29 | 35.6957898 | 2.5763336 |
| 30 | 35.7162981 | 2.6303246 |
| 31 | 35.7368722 | 2.6844940 |
| 32 | 35.7575588 | 2.7389596 |
| 33 | 35.7784042 | 2.7938470 |
| 34 | 35.7994556 | 2.8492817 |
| 35 | 35.8131924 | 2.8440540 |
| 36 | 35.8269200 | 2.8388298 |
| 37 | 35.8406391 | 2.8336089 |
| 38 | 35.8543520 | 2.8283924 |
| 39 | 35.8680611 | 2.8231767 |
| 40 | 35.8817682 | 2.8179627 |
| 41 | 35.8954744 | 2.8127487 |
| 42 | 35.9091830 | 2.8075356 |
| 43 | 35.9228945 | 2.8023216 |
| 44 | 35.9366117 | 2.7971050 |

**********
* PHOTO FRAME NUMBER 13 OF 16 *
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## FRAME 17

| | YEAR | MONTH | DAY | HOUR | MINUTE | SECOND |
|---|---|---|---|---|---|---|
| GMT | 67 | 2 | 15 | 10 | 1 | 10.299 |

| | | | | | |
|---|---|---|---|---|---|
| LONGITUDE OF NADIR POINT | = | 35.9071980 DEG | LATITUDE OF NADIR POINT | = | 2.4653966 DEG |
| LONG OF CAMERA AXIS INTERSECT | = | 35.9019599 DEG | LATI OF CAMERA AXIS INTERSECT | = | 2.4670762 DEG |
| SPACECRAFT RADIUS | = | 1792.1029968 KM | SPACECRAFT ALTITUDE | = | 54.0130035 KM |
| MEAN ALTITUDE RATE | = | -0.0552597 KM/SEC | TIME FROM PERIAPSIS | = | -138.1375189 SEC |
| HORIZONTAL VELOCITY | = | 1.9092779 KM/SEC | TRUE ANOMALY | = | 353.3843307 DEG |
| SCALE FACTOR (HIGH) | = | 0.0112935 M/KM | TILT DISTANCE (HIGH) | = | 1.8984435 MM |
| SCALE FACTOR (LOW) | = | 0.0014811 M/KM | TILT DISTANCE (LOW) | = | 0.2489765 MM |
| IMAGE MOTION COMPENSATION (V/H) | = | 0.0353513 RAD/SEC | SWING ANGLE | = | 87.0995522 DEG |
| EMISSION ANGLE | = | 0.1839865 DEG | INCIDENCE ANGLE | = | 75.0135183 DEG |
| PHASE ANGLE | = | 74.8378611 DEG | NORTH DEVIATION ANGLE | = | 339.2092361 DEG |
| TILT ANGLE | = | 0.1783157 DEG | RESOLUTION CONSTANT | = | 1.1720861 MTR |
| TILT AZIMUTH | = | 287.8904457 DEG | SUN AZIMUTH AT PRINCIPAL GND PT | = | 92.2166643 DEG |
| SUN ANGLE AT NADIR | = | 75.0082254 DEG | SUN ARC AT NADIR | = | 2275.4040222 KM |
| LONGITUDE DISTANCE TO TARGET | = | 0.6571980 DEG | LATITUDE DISTANCE TO TARGET | = | -0.4516134 DEG |
| LONGITUDE ARC LENGTH TO TARGET | = | 19.9363585 KM | LATITUDE ARC LENGTH TO TARGET | = | -13.6998690 KM |
| FORWARD OVERLAP RATIO | = | 6.4192541 PCT | SIDE OVERLAP RATIO | = | 0. PCT |
| TIME BETWEEN PHOTOS | = | 2.3998260 SEC | ALPHA | = | 3.1756497 DEG. |

| DIRECTION COSINES TO TARGET CAMERA AXIS | X | Y | Z | MAGNITUDE (KM) |
|---|---|---|---|---|
| | -0.55024526 | -0.81274725 | 0.19149951 | 59.32798672 |
| | -0.80752380 | -0.58833291 | -0.04206780 | 54.01327515 |
| C1 | -0.86045969 | -0.49798390 | 0.10780142 | 54.95114136 |
| C2 | -0.77539874 | -0.59115142 | -0.22202883 | 54.95433044 |
| C3 | -0.72759568 | -0.65901633 | -0.19053087 | 54.97312329 |
| C4 | -0.81265663 | -0.56584882 | 0.13929937 | 54.96694946 |

| | X | Y | Z | X DOT | Y DOT | Z DOT |
|---|---|---|---|---|---|---|
| STATE VECTOR (1950.0) | -592.1408310 | -1589.1410675 | -579.3384705 | 1.7051254 | -0.2757751 | -0.8154093 |

LONG 36.7345 DEG
LATI 2.9278 DEG

(1) • 44.05538 KM • (2)

LONG 36.2181 DEG
LATI 1.5702 DEG

LOW RESOLUTION

37.27478 KM 37.27971 KM

(4) • 44.15262 KM • (3)

LONG 35.5847 DEG
LATI 3.3657 DEG

LONG 35.0680 DEG
LATI 2.0048 DEG

LONG 36.0909 DEG
LATI 2.7375 DEG

(1) • 19.40567 KM • (2)

LONG 35.8636 DEG
LATI 2.1395 DEG

HIGH RESOLUTION

4.87961 KM 4.87988 KM

(4) • 19.41125 KM • (3)

LONG 35.9404 DEG
LATI 2.7947 DEG

LONG 35.7130 DEG
LATI 2.1965 DEG

LOW RESOLUTION 17

| INDEX | LONGITUDE | LATITUDE |
|---|---|---|
| 1 | 36.7345214 | 2.9277998 |
| 2 | 36.6831541 | 2.7945138 |
| 3 | 36.6343317 | 2.6674757 |
| 4 | 36.5873947 | 2.5450172 |
| 5 | 36.5417724 | 2.4256776 |
| 6 | 36.4969530 | 2.3081446 |
| 7 | 36.4524608 | 2.1911776 |
| 8 | 36.4078355 | 2.0735677 |
| 9 | 36.3626080 | 1.9540718 |
| 10 | 36.3162851 | 1.8313675 |
| 11 | 36.2683244 | 1.7039887 |
| 12 | 36.2181044 | 1.5702451 |
| 13 | 36.1077719 | 1.6124838 |
| 14 | 36.0011663 | 1.6531841 |
| 15 | 35.8973265 | 1.6927232 |
| 16 | 35.7953796 | 1.7314401 |
| 17 | 35.6945162 | 1.7696465 |
| 18 | 35.5939617 | 1.8076377 |
| 19 | 35.4929504 | 1.8457041 |
| 20 | 35.3907032 | 1.8841341 |
| 21 | 35.2863998 | 1.9232335 |
| 22 | 35.1791539 | 1.9633250 |
| 23 | 35.0679817 | 2.0047663 |
| 24 | 35.1193104 | 2.1384349 |
| 25 | 35.1681089 | 2.2658239 |
| 26 | 35.2150354 | 2.3886136 |
| 27 | 35.2606602 | 2.5082648 |
| 28 | 35.3054919 | 2.6260976 |
| 29 | 35.3500080 | 2.7433540 |
| 30 | 35.3946691 | 2.8612482 |
| 31 | 35.4399447 | 2.9810258 |
| 32 | 35.4863291 | 3.1040110 |
| 33 | 35.5343680 | 3.2316741 |
| 34 | 35.5846844 | 3.3657080 |
| 35 | 35.6955037 | 3.3230577 |
| 36 | 35.8024735 | 3.2819793 |
| 37 | 35.9065714 | 3.2420884 |
| 38 | 36.0086780 | 3.2030410 |
| 39 | 36.1096067 | 3.1645248 |
| 40 | 36.2101359 | 3.1262381 |
| 41 | 36.3110328 | 3.0878909 |
| 42 | 36.4130707 | 3.0491902 |
| 43 | 36.5170650 | 3.0098304 |
| 44 | 36.6238909 | 2.9694861 |

HIGH RESOLUTION 17

| INDEX | LONGITUDE | LATITUDE |
|---|---|---|
| 1 | 36.0908837 | 2.7375363 |
| 2 | 36.0698571 | 2.6822759 |
| 3 | 36.0490413 | 2.6275600 |
| 4 | 36.0283899 | 2.5732609 |
| 5 | 36.0078554 | 2.5192572 |
| 6 | 35.9873919 | 2.4654284 |
| 7 | 35.9669547 | 2.4116569 |
| 8 | 35.9464979 | 2.3578248 |
| 9 | 35.9259782 | 2.3038134 |
| 10 | 35.9053488 | 2.2495040 |
| 11 | 35.8845639 | 2.1947728 |
| 12 | 35.8635769 | 2.1394961 |
| 13 | 35.8498836 | 2.1446853 |
| 14 | 35.8361969 | 2.1498720 |
| 15 | 35.8225155 | 2.1550544 |
| 16 | 35.8088393 | 2.1602360 |
| 17 | 35.7951636 | 2.1654150 |
| 18 | 35.7814884 | 2.1705931 |
| 19 | 35.7678103 | 2.1757712 |
| 20 | 35.7541299 | 2.1809502 |
| 21 | 35.7404428 | 2.1861301 |
| 22 | 35.7267475 | 2.1913133 |
| 23 | 35.7130432 | 2.1964974 |
| 24 | 35.7340584 | 2.2517835 |
| 25 | 35.7548637 | 2.3065241 |
| 26 | 35.7755089 | 2.3608454 |
| 27 | 35.7960405 | 2.4148705 |
| 28 | 35.8165035 | 2.4687172 |
| 29 | 35.8369422 | 2.5225075 |
| 30 | 35.8574028 | 2.5763550 |
| 31 | 35.8779287 | 2.6303801 |
| 32 | 35.8985667 | 2.6847023 |
| 33 | 35.9193630 | 2.7394445 |
| 34 | 35.9403653 | 2.7947315 |
| 35 | 35.9540653 | 2.7895226 |
| 36 | 35.9677582 | 2.7843172 |
| 37 | 35.9814425 | 2.7791160 |
| 38 | 35.9951210 | 2.7739173 |
| 39 | 36.0087957 | 2.7687196 |
| 40 | 36.0224710 | 2.7635244 |
| 41 | 36.0361443 | 2.7583292 |
| 42 | 36.0498214 | 2.7531322 |
| 43 | 36.0635018 | 2.7479353 |
| 44 | 36.0771885 | 2.7427367 |

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* PHOTO FRAME NUMBER 14 OF 16 *
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## FRAME 18

| | YEAR | MONTH | DAY | HOUR | MINUTE | SECOND |
|---|---|---|---|---|---|---|
| GMT | 67 | 7 | 15 | 10 | 1 | 12.699 |

| | | | | | |
|---|---|---|---|---|---|
| LONGITUDE OF NADIR POINT | = | 36.0439510 | DEG | LATITUDE OF NADIR POINT | = 2.4132800 DEG |
| LONG OF CAMERA AXIS INTERSECT | = | 36.0429773 | DEG | LATI OF CAMERA AXIS INTERSECT | = 2.4133491 DEG |
| SPACECRAFT RADIUS | = | 1791.9717712 | KM | SPACECRAFT ALTITUDE | = 53.8817749 KM |
| MEAN ALTITUDE RATE | = | -0.0540407 | KM/SEC | TIME FROM PERIAPSIS | = -135.7367697 SEC |
| HORIZONTAL VELOCITY | = | 1.9094172 | KM/SEC | TRUE ANOMALY | = 353.5308838 DEG |
| SCALE FACTOR (HIGH) | = | 0.0113211 | M/KM | TILT DISTANCE (HIGH) | = 0.3940206 MM |
| SCALE FACTOR (LOW) | = | 0.0014847 | M/KM | TILT DISTANCE (LOW) | = 0.0516748 MM |
| IMAGE MOTION COMPENSATION (V/H) | = | 0.0354377 | RAD/SEC | SWING ANGLE | = 73.3320312 DEG |
| EMISSION ANGLE | = | 0.0383083 | DEG | INCIDENCE ANGLE | = 74.8703213 DEG |
| PHASE ANGLE | = | 74.8378630 | DEG | NORTH DEVIATION ANGLE | = 339.2031212 DEG |
| TILT ANGLE | = | 0.0370094 | DEG | RESOLUTION CONSTANT | = 1.1692348 MTR |
| TILT AZIMUTH | = | 274.1267662 | DEG | SUN AZIMUTH AT PRINCIPAL GND PT | = 92.2097063 DEG |
| SUN ANGLE AT NADIR | = | 74.8693447 | DEG | SUN ARC AT NADIR | = 2271.1910400 KM |
| LONGITUDE DISTANCE TO TARGET | = | 0.7939510 | DEG | LATITUDE DISTANCE TO TARGET | = -0.5037200 DEG |
| LONGITUDE ARC LENGTH TO TARGET | = | 24.0848169 | KM | LATITUDE ARC LENGTH TO TARGET | = -15.2805456 KM |
| FORWARD OVERLAP RATIO | = | 6.1502087 | PCT | SIDE OVERLAP RATIO | = 0. PCT |
| TIME BETWEEN PHOTOS | = | 2.4001479 | SEC | ALPHA | = 0.0324577 DEG. |

| | X | Y | Z | MAGNITUDE (KM) |
|---|---|---|---|---|
| DIRECTION COSINES TO TARGET | -0.49188942 | -0.84433415 | 0.21247268 | 61.16145039 |
| CAMERA AXIS | -0.80752731 | -0.58832809 | -0.04206770 | 53.88179016 |
| C1 | -0.86046265 | -0.49797877 | 0.10780152 | 54.82382202 |
| C2 | -0.77540229 | -0.59114679 | -0.22202873 | 54.82702637 |
| C3 | -0.72759962 | -0.65901200 | -0.19053077 | 54.82972717 |
| C4 | -0.81265999 | -0.56584398 | 0.13929947 | 54.82652283 |

| | X | Y | Z | X DOT | Y DOT | Z DOT |
|---|---|---|---|---|---|---|
| STATE VECTOR (1950.0) | -588.0453720 | -1589.7993011 | -581.2948456 | 1.7063313 | -0.2725231 | -0.8142234 |

LONG 36.8743 DEG
LATI 2.8733 DEG

LONG 36.3586 DEG
LATI 1.5179 DEG

(1) • 43.98783 KM • (2)

LOW RESOLUTION

37.18336 KM 37.18832 KM

(4) • 44.00439 KM • (3)

LONG 35.7269 DEG
LATI 3.3093 DEG

LONG 35.2118 DEG
LATI 1.9527 DEG

LONG 36.2315 DEG
LATI 2.6832 DEG

LONG 36.0047 DEG
LATI 2.0865 DEG

(1) • 19.36071 KM • (2)

HIGH RESOLUTION

4.86769 KM 4.86798 KM

(4) • 19.36167 KM • (3)

LONG 36.0813 DEG
LATI 2.7402 DEG

LONG 35.8545 DEG
LATI 2.1435 DEG

LOW RESOLUTION 18

| INDEX | LONGITUDE | LATITUDE |
|---|---|---|
| 1 | 36.8742857 | 2.8732795 |
| 2 | 36.8229837 | 2.7402035 |
| 3 | 36.7742248 | 2.6133669 |
| 4 | 36.7273479 | 2.4910997 |
| 5 | 36.6817842 | 2.3719496 |
| 6 | 36.6370249 | 2.2545993 |
| 7 | 36.5925913 | 2.1378184 |
| 8 | 36.5480242 | 2.0203913 |
| 9 | 36.5028582 | 1.9010815 |
| 10 | 36.4565978 | 1.7785693 |
| 11 | 36.4087014 | 1.6513886 |
| 12 | 36.3585505 | 1.5178550 |
| 13 | 36.2483563 | 1.5601894 |
| 14 | 36.1419220 | 1.6009690 |
| 15 | 36.0382829 | 1.6405730 |
| 16 | 35.9365673 | 1.6793403 |
| 17 | 35.8359661 | 1.7175842 |
| 18 | 35.7357059 | 1.7556028 |
| 19 | 35.6350217 | 1.7936819 |
| 20 | 35.5331402 | 1.8321154 |
| 21 | 35.4292455 | 1.8712046 |
| 22 | 35.3224568 | 1.9112739 |
| 23 | 35.2117982 | 1.9526776 |
| 24 | 35.2629614 | 2.0858919 |
| 25 | 35.3116045 | 2.2128481 |
| 26 | 35.3583827 | 2.3352211 |
| 27 | 35.4038644 | 2.4544677 |
| 28 | 35.4485579 | 2.5719008 |
| 29 | 35.4929357 | 2.6887603 |
| 30 | 35.5374608 | 2.8062549 |
| 31 | 35.5825977 | 2.9256244 |
| 32 | 35.6288428 | 3.0481904 |
| 33 | 35.6767359 | 3.1754172 |
| 34 | 35.7269006 | 3.3089910 |
| 35 | 35.8372965 | 3.2666250 |
| 36 | 35.9438972 | 3.2258052 |
| 37 | 36.0476699 | 3.1861526 |
| 38 | 36.1494923 | 3.1473264 |
| 39 | 36.2501731 | 3.1090141 |
| 40 | 36.3504891 | 3.0709196 |
| 41 | 36.4512024 | 3.0327516 |
| 42 | 36.5530910 | 2.9942203 |
| 43 | 36.6569657 | 2.9550193 |
| 44 | 36.7637057 | 2.9148259 |

HIGH RESOLUTION 18

| INDEX | LONGITUDE | LATITUDE |
|---|---|---|
| 1 | 36.2314839 | 2.6831629 |
| 2 | 36.2105012 | 2.6280339 |
| 3 | 36.1897292 | 2.5734462 |
| 4 | 36.1691198 | 2.5192760 |
| 5 | 36.1486273 | 2.4653994 |
| 6 | 36.1282063 | 2.4116979 |
| 7 | 36.1078115 | 2.3580528 |
| 8 | 36.0873981 | 2.3043470 |
| 9 | 36.0669212 | 2.2504628 |
| 10 | 36.0463352 | 2.1962823 |
| 11 | 36.0255952 | 2.1416792 |
| 12 | 36.0046520 | 2.0865322 |
| 13 | 35.9909906 | 2.0917181 |
| 14 | 35.9773393 | 2.0969005 |
| 15 | 35.9636936 | 2.1020795 |
| 16 | 35.9500518 | 2.1072559 |
| 17 | 35.9364138 | 2.1124315 |
| 18 | 35.9227753 | 2.1176053 |
| 19 | 35.9091349 | 2.1227775 |
| 20 | 35.8954916 | 2.1279514 |
| 21 | 35.8818436 | 2.1331261 |
| 22 | 35.8681874 | 2.1383025 |
| 23 | 35.8545227 | 2.1434815 |
| 24 | 35.8754883 | 2.1986242 |
| 25 | 35.8962460 | 2.2532239 |
| 26 | 35.9168434 | 2.3074043 |
| 27 | 35.9373274 | 2.3612885 |
| 28 | 35.9577417 | 2.4149969 |
| 29 | 35.9781342 | 2.4686463 |
| 30 | 35.9985471 | 2.5223538 |
| 31 | 36.0190263 | 2.5762389 |
| 32 | 36.0396161 | 2.6304211 |
| 33 | 36.0603647 | 2.6850199 |
| 34 | 36.0813189 | 2.7401634 |
| 35 | 36.0949845 | 2.7349733 |
| 36 | 36.1086421 | 2.7297867 |
| 37 | 36.1222925 | 2.7246042 |
| 38 | 36.1359382 | 2.7194235 |
| 39 | 36.1495805 | 2.7142445 |
| 40 | 36.1632228 | 2.7090664 |
| 41 | 36.1768656 | 2.7038883 |
| 42 | 36.1905107 | 2.6987093 |
| 43 | 36.2041612 | 2.6935286 |
| 44 | 36.2178178 | 2.6883470 |

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* PHOTO FRAME NUMBER 15 OF 16 *
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## FRAME 19

| | YEAR | MONTH | DAY | HOUR | MINUTE | SECOND |
|---|---|---|---|---|---|---|
| GMT | 67 | 2 | 15 | 10 | 1 | 15.199 |

| | | | | | |
|---|---|---|---|---|---|
| LONGITUDE OF NADIR POINT | = | 36.1863585 | DEG | LATITUDE OF NADIR POINT | = | 2.3590313 DEG |
| LONG OF CAMERA AXIS INTERSECT | = | 36.1898012 | DEG | LATI OF CAMERA AXIS INTERSECT | = | 2.3573937 DEG |
| SPACECRAFT RADIUS | = | 1791.8382568 | KM | SPACECRAFT ALTITUDE | = | 53.7482635 KM |
| MEAN ALTITUDE RATE | = | -0.0527708 | KM/SEC | TIME FROM PERIAPSIS | = | -133.2370358 SEC |
| HORIZONTAL VELOCITY | = | 1.9395589 | KM/SEC | TRUE ANOMALY | = | 353.6835136 DEG |
| SCALE FACTOR (HIGH) | = | 0.0113492 | M/KM | TILT DISTANCE (HIGH) | = | 1.3299521 MM |
| SCALE FACTOR (LOW) | = | 0.0014884 | M/KM | TILT DISTANCE (LOW) | = | 0.1744199 MM |
| IMAGE MOTION COMPENSATION (V/H) | = | 0.0355256 | RAD/SEC | SWING ANGLE | = | 274.2583847 DEG |
| EMISSION ANGLE | = | 0.1289651 | DEG | INCIDENCE ANGLE | = | 74.7212296 DEG |
| PHASE ANGLE | = | 74.8378639 | DEG | NORTH DEVIATION ANGLE | = | 339.1370406 DEG |
| TILT ANGLE | = | 0.1249189 | DEG | RESOLUTION CONSTANT | = | 1.1663402 MTR |
| TILT AZIMUTH | = | 115.0637026 | DEG | SUN AZIMUTH AT PRINCIPAL GND PT | = | 92.2321732 DEG |
| SUN ANGLE AT NADIR | = | 74.7247286 | DEG | SUN ARC AT NADIR | = | 2266.8040466 KM |
| LONGITUDE DISTANCE TO TARGET | = | 0.9363585 | DEG | LATITUDE DISTANCE TO TARGET | = | -0.5579987 DEG |
| LONGITUDE ARC LENGTH TO TARGET | = | 28.4048021 | KM | LATITUDE ARC LENGTH TO TARGET | = | -16.9271097 KM |
| FORWARD OVERLAP RATIO | = | 2.0318834 | PCT | SIDE OVERLAP RATIO | = | 0. PCT |
| TIME BETWEEN PHOTOS | = | 2.4999261 | SEC | ALPHA | = | -0.1166413 DEG. |

| | X | Y | Z | MAGNITUDE (KM) |
|---|---|---|---|---|
| DIRECTION COSINES TO TARGET | -0.43263914 | -0.87121535 | 0.23196375 | 63.35799265 |
| CAMERA AXIS | -0.80753092 | -0.58832316 | -0.04236762 | 53.74839783 |
| C1 | -0.86046569 | -0.49797352 | 0.10780161 | 54.69479370 |
| C2 | -0.77540593 | -0.59114207 | -0.22232865 | 54.69802856 |
| C3 | -0.72760367 | -0.65900755 | -0.19053069 | 54.68713379 |
| C4 | -0.81266344 | -0.56583931 | 0.13929956 | 54.68389893 |

| | X | Y | Z | X DOT | Y DOT | Z DOT |
|---|---|---|---|---|---|---|
| STATE VECTOR (1950.0) | -583.7779846 | -1590.4763641 | -583.3288574 | 1.7075783 | -0.2691349 | -0.8129844 |

LONG 37.0199 DEG
LATI 2.8165 DEG

LONG 36.5048 DEG
LATI 1.4632 DEG

(1) • 43.92025 KM • (2)

LOW RESOLUTION

37.09130 KM 37.09599 KM

(4) • 43.85321 KM • (3)

LONG 35.8749 DEG
LATI 3.2500 DEG

LONG 35.3615 DEG
LATI 1.8984 DEG

LONG 36.3779 DEG
LATI 2.6266 DEG

LONG 36.1515 DEG
LATI 2.0313 DEG

(1) • 19.31516 KM • (2)

HIGH RESOLUTION

4.85565 KM 4.85592 KM

(4) • 19.31130 KM • (3)

LONG 36.2281 DEG
LATI 2.6834 DEG

LONG 36.0018 DEG
LATI 2.0882 DEG

LOW RESOLUTION 19

| INDEX | LONGITUDE | LATITUDE |
|---|---|---|
| 1 | 37.0198617 | 2.8165249 |
| 2 | 36.9686251 | 2.6836598 |
| 3 | 36.9199286 | 2.5570247 |
| 4 | 36.8731127 | 2.4349504 |
| 5 | 36.8276091 | 2.3159865 |
| 6 | 36.7829065 | 2.1988231 |
| 7 | 36.7385325 | 2.0822233 |
| 8 | 36.6940255 | 1.9649814 |
| 9 | 36.6489186 | 1.8458594 |
| 10 | 36.6027207 | 1.7235393 |
| 11 | 36.5548906 | 1.5965575 |
| 12 | 36.5048084 | 1.4632314 |
| 13 | 36.3947492 | 1.5056699 |
| 14 | 36.2884851 | 1.5465341 |
| 15 | 36.1850486 | 1.5862064 |
| 16 | 36.0835662 | 1.6250292 |
| 17 | 35.9832306 | 1.6633150 |
| 18 | 35.8832684 | 1.7013617 |
| 19 | 35.7829189 | 1.7394588 |
| 20 | 35.6814089 | 1.7778965 |
| 21 | 35.5779305 | 1.8169780 |
| 22 | 35.4716086 | 1.8570242 |
| 23 | 35.3614740 | 1.8983921 |
| 24 | 35.4124689 | 2.0311420 |
| 25 | 35.4609532 | 2.1576567 |
| 26 | 35.5075808 | 2.2796063 |
| 27 | 35.5529160 | 2.3984388 |
| 28 | 35.5974679 | 2.5154656 |
| 29 | 35.6417060 | 2.6319194 |
| 30 | 35.6860905 | 2.7490059 |
| 31 | 35.7310872 | 2.8679597 |
| 32 | 35.7771878 | 2.9900988 |
| 33 | 35.8249335 | 3.1168799 |
| 34 | 35.8749442 | 3.2499841 |
| 35 | 35.9849091 | 3.2079101 |
| 36 | 36.0911322 | 3.1673567 |
| 37 | 36.1945758 | 3.1279474 |
| 38 | 36.2961097 | 3.0893483 |
| 39 | 36.3965406 | 3.0512461 |
| 40 | 36.4966407 | 3.0133479 |
| 41 | 36.5971723 | 2.9753644 |
| 42 | 36.6989107 | 2.9370061 |
| 43 | 36.8026690 | 2.8979681 |
| 44 | 36.9093270 | 2.8579270 |

HIGH RESOLUTION 19

| INDEX | LONGITUDE | LATITUDE |
|---|---|---|
| 1 | 36.3778872 | 2.6265500 |
| 2 | 36.3569479 | 2.5715525 |
| 3 | 36.3362198 | 2.5170963 |
| 4 | 36.3156543 | 2.4630558 |
| 5 | 36.2952046 | 2.4093091 |
| 6 | 36.2748265 | 2.3557348 |
| 7 | 36.2544751 | 2.3022185 |
| 8 | 36.2341046 | 2.2486408 |
| 9 | 36.2136722 | 2.1948864 |
| 10 | 36.1931300 | 2.1408340 |
| 11 | 36.1724334 | 2.0863632 |
| 12 | 36.1515350 | 2.0313469 |
| 13 | 36.1379089 | 2.0365293 |
| 14 | 36.1242919 | 2.0417083 |
| 15 | 36.1106815 | 2.0468839 |
| 16 | 36.0970764 | 2.0520560 |
| 17 | 36.0834742 | 2.0572265 |
| 18 | 36.0698733 | 2.0623952 |
| 19 | 36.0562711 | 2.0675640 |
| 20 | 36.0426669 | 2.0727327 |
| 21 | 36.0290580 | 2.0779023 |
| 22 | 36.0154419 | 2.0830719 |
| 23 | 36.0018177 | 2.0882466 |
| 24 | 36.0227327 | 2.1432433 |
| 25 | 36.0434413 | 2.1976970 |
| 26 | 36.0639896 | 2.2517357 |
| 27 | 36.0844245 | 2.3054782 |
| 28 | 36.1047921 | 2.3590448 |
| 29 | 36.1251349 | 2.4125525 |
| 30 | 36.1455002 | 2.4661183 |
| 31 | 36.1659317 | 2.5198616 |
| 32 | 36.1864738 | 2.5739004 |
| 33 | 36.2071738 | 2.6283541 |
| 34 | 36.2280788 | 2.6833516 |
| 35 | 36.2417088 | 2.6781811 |
| 36 | 36.2553310 | 2.6730141 |
| 37 | 36.2689476 | 2.6678488 |
| 38 | 36.2825594 | 2.6626869 |
| 39 | 36.2961693 | 2.6575258 |
| 40 | 36.3097782 | 2.6523665 |
| 41 | 36.3233891 | 2.6472062 |
| 42 | 36.3370037 | 2.6420452 |
| 43 | 36.3506236 | 2.6368824 |
| 44 | 36.3642507 | 2.6317180 |

**********
* PHOTO FRAME NUMBER 16 OF 16 *
**********

## FRAME 20

| | YEAR | MONTH | DAY | HOUR | MINUTE | SECOND |
|---|---|---|---|---|---|---|
| GMT | 67 | 2 | 15 | 10 | 1 | 17.600 |

| | | | |
|---|---|---|---|
| LONGITUDE OF NADIR POINT | = 36.3230162 DEG | LATITUDE OF NADIR POINT | = 2.3068946 DEG |
| LONG OF CAMERA AXIS INTERSECT | = 36.3306770 DEG | LATI OF CAMERA AXIS INTERSECT | = 2.3036819 DEG |
| SPACECRAFT RADIUS | = 1791.7131195 KM | SPACECRAFT ALTITUDE | = 53.6231232 KM |
| MEAN ALTITUDE RATE | = -0.0515519 KM/SEC | TIME FROM PERIAPSIS | = -100.8382177 SEC |
| HORIZONTAL VELOCITY | = 1.9096918 KM/SEC | TRUE ANOMALY | = 353.8299942 DEG |
| SCALE FACTOR (HIGH) | = 0.0113756 M/KM | TILT DISTANCE (HIGH) | = 2.8752944 MM |
| SCALE FACTOR (LOW) | = 0.0014919 M/KM | TILT DISTANCE (LOW) | = 0.3770878 MM |
| IMAGE MOTION COMPENSATION (V/H) | = 0.0356079 RAD/SEC | SWING ANGLE | = 271.9602509 DEG |
| EMISSION ANGLE | = 0.2783625 DEG | INCIDENCE ANGLE | = 74.5781727 DEG |
| PHASE ANGLE | = 74.8378639 DEG | NORTH DEVIATION ANGLE | = 339.1914749 DEG |
| TILT ANGLE | = 0.2700672 DEG | RESOLUTION CONSTANT | = 1.1636350 MTR |
| TILT AZIMUTH | = 112.7688046 DEG | SUN AZIMUTH AT PRINCIPAL GND PT | = 92.1946688 DEG |
| SUN ANGLE AT NADIR | = 74.5859442 DEG | SUN ARC AT NADIR | = 2262.5939636 KM |
| LONGITUDE DISTANCE TO TARGET | = 1.0730162 DEG | LATITUDE DISTANCE TO TARGET | = -0.6101054 DEG |
| LONGITUDE ARC LENGTH TO TARGET | = 32.5503669 KM | LATITUDE ARC LENGTH TO TARGET | = -18.5077863 KM |
| FORWARD OVERLAP RATIO | = 5.7711115 PCT | SIDE OVERLAP RATIO | = 0. PCT |
| TIME BETWEEN PHOTOS | = 2.4001479 SEC | ALPHA | = -0.2597166 DEG. |

| | X | Y | Z | MAGNITUDE (KM) |
|---|---|---|---|---|
| DIRECTION COSINES TO TARGET | -0.37797653 | -0.89184204 | 0.24849855 | 65.71468258 |
| CAMERA AXIS | -0.80753443 | -0.58831834 | -0.04206753 | 53.62373352 |
| C1 | -0.86046864 | -0.49796837 | 0.10780170 | 54.57437134 |
| C2 | -0.77540947 | -0.59113744 | -0.22202856 | 54.57760620 |
| C3 | -0.72760762 | -0.65900321 | -0.19053061 | 54.55375671 |
| C4 | -0.81266679 | -0.56583415 | 0.13929964 | 54.55050659 |

| | X | Y | Z | X DOT | Y DOT | Z DOT |
|---|---|---|---|---|---|---|
| STATE VECTOR (1950.0) | -579.6800766 | -1591.1181183 | -585.2777710 | 1.7087666 | -0.2658815 | -0.8117911 |

LONG 37.1596 DEG
LATI 2.7621 DEG

LONG 36.6452 DEG
LATI 1.4107 DEG

(1) • 43.85803 KM • (2)

LOW RESOLUTION

37.03506 KM 37.01010 KM

(4) • 43.71117 KM • (3)

LONG 36.0179 DEG
LATI 3.1934 DEG

LONG 35.5050 DEG
LATI 1.8463 DEG

LONG 36.5184 DEG
LATI 2.5722 DEG

LONG 36.2925 DEG
LATI 1.9784 DEG

(1) • 19.27263 KM • (2)

HIGH RESOLUTION

4.84443 KM 4.84471 KM

(4) • 19.26420 KM • (3)

LONG 36.3689 DEG
LATI 2.6288 DEG

LONG 36.1431 DEG
LATI 2.0352 DEG

LOW RESOLUTION 20

| INDEX | LONGITUDE | LATITUDE |
|---|---|---|
| 1 | 37.1595926 | 2.7620772 |
| 2 | 37.1084166 | 2.6294059 |
| 3 | 37.0597777 | 2.5029561 |
| 4 | 37.0130177 | 2.3810594 |
| 5 | 36.9675679 | 2.2622696 |
| 6 | 36.9229193 | 2.1452744 |
| 7 | 36.8785992 | 2.0288445 |
| 8 | 36.8341460 | 1.9117725 |
| 9 | 36.7890959 | 1.7928230 |
| 10 | 36.7429552 | 1.6706787 |
| 11 | 36.6951852 | 1.5438797 |
| 12 | 36.6451659 | 1.4107465 |
| 13 | 36.5352302 | 1.4532858 |
| 14 | 36.4291224 | 1.4942336 |
| 15 | 36.3258715 | 1.5339751 |
| 16 | 36.2246065 | 1.5728508 |
| 17 | 36.1245174 | 1.6111776 |
| 18 | 36.0248346 | 1.6492550 |
| 19 | 35.9247971 | 1.6873692 |
| 20 | 35.8236375 | 1.7258146 |
| 21 | 35.7205501 | 1.7648893 |
| 22 | 35.6146660 | 1.8049176 |
| 23 | 35.5050254 | 1.8462513 |
| 24 | 35.5558615 | 1.9785658 |
| 25 | 35.6041965 | 2.1046672 |
| 26 | 35.6506824 | 2.2262173 |
| 27 | 35.6958809 | 2.3446622 |
| 28 | 35.7402992 | 2.4613056 |
| 29 | 35.7844052 | 2.5773787 |
| 30 | 35.8286586 | 2.6940810 |
| 31 | 35.8735232 | 2.8126445 |
| 32 | 35.9194889 | 2.9343824 |
| 33 | 35.9670959 | 3.0607452 |
| 34 | 36.0169611 | 3.1934071 |
| 35 | 36.1265206 | 3.1516106 |
| 36 | 36.2323904 | 3.1113091 |
| 37 | 36.3355260 | 3.0721311 |
| 38 | 36.4367909 | 3.0337454 |
| 39 | 36.5369892 | 2.9958430 |
| 40 | 36.6368895 | 2.9581293 |
| 41 | 36.7372537 | 2.9203199 |
| 42 | 36.8388553 | 2.8821238 |
| 43 | 36.9425077 | 2.8432404 |
| 44 | 37.0490932 | 2.8033435 |

HIGH RESOLUTION 20

| INDEX | LONGITUDE | LATITUDE |
|---|---|---|
| 1 | 36.5183711 | 2.5722270 |
| 2 | 36.4974728 | 2.5173541 |
| 3 | 36.4767852 | 2.4630200 |
| 4 | 36.4562597 | 2.4090999 |
| 5 | 36.4358511 | 2.3554718 |
| 6 | 36.4155126 | 2.3020187 |
| 7 | 36.3952017 | 2.2486220 |
| 8 | 36.3748717 | 2.1951647 |
| 9 | 36.3544784 | 2.1415306 |
| 10 | 36.3339782 | 2.0875986 |
| 11 | 36.3133235 | 2.0332499 |
| 12 | 36.2924666 | 1.9783566 |
| 13 | 36.2788725 | 1.9835364 |
| 14 | 36.2652884 | 1.9887120 |
| 15 | 36.2517114 | 1.9938833 |
| 16 | 36.2381401 | 1.9990520 |
| 17 | 36.2245712 | 2.0042182 |
| 18 | 36.2110047 | 2.0093827 |
| 19 | 36.1974382 | 2.0145472 |
| 20 | 36.1838698 | 2.0197108 |
| 21 | 36.1702976 | 2.0248761 |
| 22 | 36.1567197 | 2.0300415 |
| 23 | 36.1431327 | 2.0352102 |
| 24 | 36.1640015 | 2.0900711 |
| 25 | 36.1846633 | 2.1443916 |
| 26 | 36.2051663 | 2.1982955 |
| 27 | 36.2255564 | 2.2519048 |
| 28 | 36.2458773 | 2.3053382 |
| 29 | 36.2661767 | 2.3587136 |
| 30 | 36.2864966 | 2.4121470 |
| 31 | 36.3068829 | 2.4657563 |
| 32 | 36.3273797 | 2.5196610 |
| 33 | 36.3480349 | 2.5739798 |
| 34 | 36.3688936 | 2.6288407 |
| 35 | 36.3824906 | 2.6236891 |
| 36 | 36.3960805 | 2.6185391 |
| 37 | 36.4096646 | 2.6133925 |
| 38 | 36.4232454 | 2.6082477 |
| 39 | 36.4368248 | 2.6031037 |
| 40 | 36.4504032 | 2.5979614 |
| 41 | 36.4639850 | 2.5928183 |
| 42 | 36.4775705 | 2.5876735 |
| 43 | 36.4911623 | 2.5825269 |
| 44 | 36.5047617 | 2.5773787 |

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* PHOTO FRAME NUMBER 1 OF 4 *
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## FRAME 21

| | YEAR | MONTH | DAY | HOUR | MINUTE | SECOND |
|---|---|---|---|---|---|---|
| GMT | 67 | 2 | 15 | 10 | 4 | 19.399 |

| | | | | | |
|---|---|---|---|---|---|
| LONGITUDE OF NADIR POINT | = | 46.6889119 | DEG | LATITUDE OF NADIR POINT | = -1.6674583 DEG |
| LONG OF CAMERA AXIS INTERSECT | = | 47.0161862 | DEG | LATI OF CAMERA AXIS INTERSECT | = -1.7926497 DEG |
| SPACECRAFT RADIUS | = | 1790.7893982 | KM | SPACECRAFT ALTITUDE | = 52.6994019 KM |
| MEAN ALTITUDE RATE | = | 0.0414383 | KM/SEC | TIME FROM PERIAPSIS | = 80.9819991 SEC |
| HORIZONTAL VELOCITY | = | 1.9136492 | KM/SEC | TRUE ANOMALY | = 4.9566274 DEG |
| SCALE FACTOR (HIGH) | = | 0.0113400 | M/KM | TILT DISTANCE (HIGH) | = 122.9128383 MM |
| SCALE FACTOR (LOW) | = | 0.0014872 | M/KM | TILT DISTANCE (LOW) | = 16.1197164 MM |
| IMAGE MOTION COMPENSATION (V/H) | = | 0.0349717 | RAD/SEC | SWING ANGLE | = 270.0794678 DEG |
| EMISSION ANGLE | = | 11.7426186 | DEG | INCIDENCE ANGLE | = 63.7572989 DEG |
| PHASE ANGLE | = | 74.8379097 | DEG | NORTH DEVIATION ANGLE | = 339.5438347 DEG |
| TILT ANGLE | = | 11.3923516 | DEG | RESOLUTION CONSTANT | = 1.1672803 MTR |
| TILT AZIMUTH | = | 113.9467802 | DEG | SUN AZIMUTH AT PRINCIPAL GND PT | = 90.7902508 DEG |
| SUN ANGLE AT NADIR | = | 64.0861912 | DEG | SUN ARC AT NADIR | = 1944.0798340 KM |
| LONGITUDE DISTANCE TO TARGET | = | -0.4780879 | DEG | LATITUDE DISTANCE TO TARGET | = 0.1655417 DEG |
| LONGITUDE ARC LENGTH TO TARGET | = | -14.5029844 | KM | LATITUDE ARC LENGTH TO TARGET | = 5.0217719 KM |
| FORWARD OVERLAP RATIO | = | 0. | PCT | SIDE OVERLAP RATIO | = 0. PCT |
| TIME BETWEEN PHOTOS | = | 0. | SEC | ALPHA | = -11.1407439 DEG. |

| | X | Y | Z | MAGNITUDE (KM) |
|---|---|---|---|---|
| DIRECTION COSINES TO TARGET | -0.85217060 | -0.51940465 | -0.06343561 | 54.95188904 |
| CAMERA AXIS | -0.80779829 | -0.58795650 | -0.04206058 | 53.79171753 |
| C1 | -0.86069091 | -0.49758237 | 0.10780888 | 55.25199890 |
| C2 | -0.77567593 | -0.59079028 | -0.22202186 | 55.25778198 |
| C3 | -0.72790427 | -0.65867741 | -0.19052415 | 54.22909546 |
| C4 | -0.81291924 | -0.56546971 | 0.13930658 | 54.22352600 |

| | X | Y | Z | X DOT | Y DOT | Z DOT |
|---|---|---|---|---|---|---|
| STATE VECTOR (1950.0) | -262.3239784 | -1616.7989655 | -723.9294891 | 1.7742824 | -0.0159088 | -0.7099065 |

LONG 47.9255 DEG
LATI -1.3038 DEG

LONG 47.3701 DEG
LATI -2.7626 DEG

(1) • 47.34395 KM • (2)

LOW RESOLUTION

38.26550 KM 38.27511 KM

(4) • 40.97724 KM • (3)

LONG 46.7131 DEG
LATI -0.9544 DEG

LONG 46.2315 DEG
LATI -2.2166 DEG

LONG 47.2081 DEG
LATI -1.5216 DEG

LONG 46.9790 DEG
LATI -2.1227 DEG

(1) • 19.51238 KM • (2)

HIGH RESOLUTION

4.96736 KM 4.96788 KM

(4) • 19.14915 KM • (3)

LONG 47.0530 DEG
LATI -1.4689 DEG

LONG 46.8281 DEG
LATI -2.0588 DEG

LOW RESOLUTION 21

| INDEX | LONGITUDE | LATITUDE |
|---|---|---|
| 1 | 47.9254594 | -1.3038242 |
| 2 | 47.8697815 | -1.4469585 |
| 3 | 47.8169680 | -1.5833556 |
| 4 | 47.7662840 | -1.7148308 |
| 5 | 47.7171006 | -1.8429592 |
| 6 | 47.6688585 | -1.9691648 |
| 7 | 47.6210375 | -2.0947874 |
| 8 | 47.5731382 | -2.2211390 |
| 9 | 47.5246563 | -2.3495663 |
| 10 | 47.4750609 | -2.4815050 |
| 11 | 47.4237728 | -2.6185545 |
| 12 | 47.3701334 | -2.7625570 |
| 13 | 47.2451682 | -2.7020868 |
| 14 | 47.1280289 | -2.6455252 |
| 15 | 47.0171714 | -2.5921063 |
| 16 | 46.9113078 | -2.5411932 |
| 17 | 46.8093472 | -2.4922489 |
| 18 | 46.7103338 | -2.4448047 |
| 19 | 46.6134176 | -2.3984491 |
| 20 | 46.5178146 | -2.3528012 |
| 21 | 46.4227824 | -2.3075051 |
| 22 | 46.3275995 | -2.2622158 |
| 23 | 46.2315350 | -2.2165884 |
| 24 | 46.2790999 | -2.0925582 |
| 25 | 46.3243828 | -1.9743455 |
| 26 | 46.3679872 | -1.8604001 |
| 27 | 46.4104319 | -1.7493711 |
| 28 | 46.4521875 | -1.6400402 |
| 29 | 46.4936910 | -1.5312626 |
| 30 | 46.5353737 | -1.4219156 |
| 31 | 46.5776691 | -1.3108533 |
| 32 | 46.6210413 | -1.1968549 |
| 33 | 46.6660008 | -1.0785688 |
| 34 | 46.7131319 | -0.9544421 |
| 35 | 46.8151202 | -0.9843139 |
| 36 | 46.9162292 | -1.0138417 |
| 37 | 47.0172291 | -1.0432508 |
| 38 | 47.1188912 | -1.0727657 |
| 39 | 47.2220044 | -1.1026128 |
| 40 | 47.3274059 | -1.1330285 |
| 41 | 47.4360051 | -1.1642680 |
| 42 | 47.5488257 | -1.1966175 |
| 43 | 47.6670403 | -1.2303962 |
| 44 | 47.7920294 | -1.2659824 |

HIGH RESOLUTION 21

| INDEX | LONGITUDE | LATITUDE |
|---|---|---|
| 1 | 47.2081046 | -1.5215928 |
| 2 | 47.1868682 | -1.5771137 |
| 3 | 47.1658545 | -1.6320907 |
| 4 | 47.1450157 | -1.6866546 |
| 5 | 47.1243038 | -1.7409238 |
| 6 | 47.1036716 | -1.7950224 |
| 7 | 47.0830746 | -1.8490671 |
| 8 | 47.0624676 | -1.9031784 |
| 9 | 47.0418048 | -1.9574733 |
| 10 | 47.0210419 | -2.0120738 |
| 11 | 47.0001297 | -2.0671021 |
| 12 | 46.9790220 | -2.1226853 |
| 13 | 46.9650507 | -2.1167686 |
| 14 | 46.9511361 | -2.1108759 |
| 15 | 46.9372778 | -2.1050071 |
| 16 | 46.9234719 | -2.0991613 |
| 17 | 46.9097157 | -2.0933377 |
| 18 | 46.8960094 | -2.0875354 |
| 19 | 46.8823495 | -2.0817528 |
| 20 | 46.8687325 | -2.0759898 |
| 21 | 46.8551588 | -2.0702448 |
| 22 | 46.8416243 | -2.0645177 |
| 23 | 46.8281279 | -2.0588077 |
| 24 | 46.8488750 | -2.0042729 |
| 25 | 46.8694234 | -1.9502794 |
| 26 | 46.8898225 | -1.8967042 |
| 27 | 46.9101171 | -1.8434262 |
| 28 | 46.9303508 | -1.7903257 |
| 29 | 46.9505701 | -1.7372885 |
| 30 | 46.9708185 | -1.6841965 |
| 31 | 46.9911399 | -1.6309339 |
| 32 | 47.0115805 | -1.5773826 |
| 33 | 47.0321860 | -1.5234224 |
| 34 | 47.0530047 | -1.4689295 |
| 35 | 47.0668745 | -1.4736423 |
| 36 | 47.0807848 | -1.4783697 |
| 37 | 47.0947351 | -1.4831090 |
| 38 | 47.1087303 | -1.4878628 |
| 39 | 47.1227703 | -1.4926311 |
| 40 | 47.1368594 | -1.4974148 |
| 41 | 47.1509995 | -1.5022147 |
| 42 | 47.1651907 | -1.5070325 |
| 43 | 47.1794372 | -1.5118666 |
| 44 | 47.1937408 | -1.5167203 |

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* PHOTO FRAME NUMBER 2 OF 4 *
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## FRAME 22

| | YEAR | MONTH | DAY | HOUR | MINUTE | SECOND |
|---|---|---|---|---|---|---|
| GMT | 67 | 2 | 15 | 10 | 4 | 21.699 |

| | | | | | |
|---|---|---|---|---|---|
| LONGITUDE OF NADIR POINT | = | 46.81996C1 DEG | LATITUDE OF NADIR POINT | = | -1.7176124 DEG |
| LONG OF CAMERA AXIS INTERSECT | = | 47.1520157 DEG | LATI OF CAMERA AXIS INTERSECT | = | -1.8445984 DEG |
| SPACECRAFT RADIUS | = | 1790.8860321 KM | SPACECRAFT ALTITUDE | = | 52.7963358 KM |
| MEAN ALTITUDE RATE | = | 0.0426105 KM/SEC | TIME FROM PERIAPSIS | = | 83.2815857 SEC |
| HORIZONTAL VELOCITY | = | 1.9105458 KM/SEC | TRUE ANOMALY | = | 5.0972500 DEG |
| SCALE FACTOR (HIGH) | = | 0.0113135 M/KM | TILT DISTANCE (HIGH) | = | 124.4709616 MM |
| SCALE FACTOR (LOW) | = | 0.0014837 M/KM | TILT DISTANCE (LOW) | = | 16.3240604 MM |
| IMAGE MOTION COMPENSATION (V/H) | = | 0.0348768 RAD/SEC | SWING ANGLE | = | 270.0789261 DEG |
| EMISSION ANGLE | = | 11.8892806 DEG | INCIDENCE ANGLE | = | 63.6205206 DEG |
| PHASE ANGLE | = | 74.8379116 DEG | NORTH DEVIATION ANGLE | = | 339.5580788 DEG |
| TILT ANGLE | = | 11.5329224 DEG | RESOLUTION CONSTANT | = | 1.1700219 MIR |
| TILT AZIMUTH | = | 110.9423780 DEG | SUN AZIMUTH AT PRINCIPAL GND PT | = | 90.7611561 DEG |
| SUN ANGLE AT NADIR | = | 63.9541492 DEG | SUN ARC AT NADIR | = | 1940.0742798 KM |
| LONGITUDE DISTANCE TO TARGET | = | -0.3470397 DEG | LATITUDE DISTANCE TO TARGET | = | 0.1153876 DEG |
| LONGITUDE ARC LENGTH TO TARGET | = | -10.5275857 KM | LATITUDE ARC LENGTH TO TARGET | = | 3.5003283 KM |
| FORWARD OVERLAP RATIO | = | 11.2778689 PCT | SIDE OVERLAP RATIO | = | 0. PCT |
| TIME BETWEEN PHOTOS | = | 2.3300479 SEC | ALPHA | = | -11.2793765 DEG. |

| | X | Y | Z | MAGNITUDE (KM) |
|---|---|---|---|---|
| DIRECTION COSINES TO TARGET | -0.81286306 | -0.58137227 | -0.03549537 | 53.98260117 |
| CAMERA AXIS | -0.80780164 | -0.58795189 | -0.04236051 | 53.91806030 |
| C1 | -0.86069373 | -0.49757767 | 0.10780896 | 55.38854980 |
| C2 | -0.77567931 | -0.59078587 | -0.22202178 | 55.39440918 |
| C3 | -0.72790803 | -0.65867327 | -0.19052407 | 54.35012817 |
| C4 | -0.81292246 | -0.56546508 | 0.13930666 | 54.34451294 |

| | X | Y | Z | X DOT | Y DOT | Z DOT |
|---|---|---|---|---|---|---|
| STATE VECTOR (1950.0) | -258.2425385 | -1616.8318939 | -725.5606384 | 1.7747926 | -0.0127340 | -0.7084850 |

LONG 48.0647 DEG LONG 47.5076 DEG
LATI -1.3542 DEG LATI -2.8179 DEG

(1) * 47.53316 KM * (2)

LOW RESOLUTION

38.38524 KM 38.39494 KM

(4) * 41.03884 KM * (3)

LONG 46.8482 DEG LONG 46.3659 DEG
LATI -1.0050 DEG LATI -2.2691 DEG

LONG 47.3444 DEG LONG 47.1148 DEG
LATI -1.5729 DEG LATI -2.1755 DEG

(1) * 19.56061 KM * (2)

HIGH RESOLUTION

4.98177 KM 4.98232 KM

(4) * 19.19188 KM * (3)

LONG 47.1889 DEG LONG 46.9635 DEG
LATI -1.5201 DEG LATI -2.1113 DEG

LOW RESOLUTION 22

| INDEX | LONGITUDE | LATITUDE |
|---|---|---|
| 1 | 48.0646944 | -1.3541934 |
| 2 | 48.0088301 | -1.4978118 |
| 3 | 47.9558425 | -1.6346717 |
| 4 | 47.9049940 | -1.7665917 |
| 5 | 47.8556523 | -1.8951521 |
| 6 | 47.8072562 | -2.0217838 |
| 7 | 47.7592850 | -2.1478306 |
| 8 | 47.7112360 | -2.2746109 |
| 9 | 47.6626039 | -2.4034744 |
| 10 | 47.6128578 | -2.5358639 |
| 11 | 47.5614138 | -2.6733821 |
| 12 | 47.5076103 | -2.8178807 |
| 13 | 47.3820920 | -2.7569990 |
| 14 | 47.2644835 | -2.7000770 |
| 15 | 47.1532245 | -2.6463371 |
| 16 | 47.0470171 | -2.5951371 |
| 17 | 46.9447584 | -2.5459342 |
| 18 | 46.8454905 | -2.4982561 |
| 19 | 46.7483568 | -2.4516852 |
| 20 | 46.6525693 | -2.4058410 |
| 21 | 46.5573850 | -2.3603631 |
| 22 | 46.4620776 | -2.3149064 |
| 23 | 46.3659191 | -2.2691245 |
| 24 | 46.4135451 | -2.1449048 |
| 25 | 46.4588895 | -2.0265094 |
| 26 | 46.5025501 | -1.9123880 |
| 27 | 46.5450521 | -1.8011892 |
| 28 | 46.5868635 | -1.6916918 |
| 29 | 46.6284242 | -1.5827486 |
| 30 | 46.6701636 | -1.4732359 |
| 31 | 46.7125168 | -1.3620029 |
| 32 | 46.7559485 | -1.2478311 |
| 33 | 46.8009706 | -1.1293658 |
| 34 | 46.8481684 | -1.0050487 |
| 35 | 46.9503336 | -1.0348530 |
| 36 | 47.0516481 | -1.0643219 |
| 37 | 47.1528864 | -1.0936823 |
| 38 | 47.2548194 | -1.1231554 |
| 39 | 47.3582406 | -1.1529692 |
| 40 | 47.4639907 | -1.1833610 |
| 41 | 47.5729871 | -1.2145860 |
| 42 | 47.6862588 | -1.2469278 |
| 43 | 47.8049889 | -1.2807125 |
| 44 | 47.9305735 | -1.3163166 |

HIGH RESULUTION 22

| INDEX | LONGITUDE | LATITUDE |
|---|---|---|
| 1 | 47.3444366 | -1.5728739 |
| 2 | 47.3231511 | -1.6285331 |
| 3 | 47.3020892 | -1.6836493 |
| 4 | 47.2812018 | -1.7383471 |
| 5 | 47.2604413 | -1.7927530 |
| 6 | 47.2397618 | -1.8469864 |
| 7 | 47.2191176 | -1.9011669 |
| 8 | 47.1984639 | -1.9554123 |
| 9 | 47.1777539 | -2.0098429 |
| 10 | 47.1569424 | -2.0645792 |
| 11 | 47.1359835 | -2.1197466 |
| 12 | 47.1148281 | -2.1754698 |
| 13 | 47.1008148 | -2.1695293 |
| 14 | 47.0868592 | -2.1636126 |
| 15 | 47.0729604 | -2.1577207 |
| 16 | 47.0591149 | -2.1518528 |
| 17 | 47.0453210 | -2.1460061 |
| 18 | 47.0315757 | -2.1401817 |
| 19 | 47.0178785 | -2.1343777 |
| 20 | 47.0042257 | -2.1285942 |
| 21 | 46.9906154 | -2.1228287 |
| 22 | 46.9770451 | -2.1170811 |
| 23 | 46.9635148 | -2.1113497 |
| 24 | 46.9843040 | -2.0566911 |
| 25 | 47.0048952 | -2.0025756 |
| 26 | 47.0253353 | -1.9488792 |
| 27 | 47.0456710 | -1.8954808 |
| 28 | 47.0659475 | -1.8422608 |
| 29 | 47.0862079 | -1.7891031 |
| 30 | 47.1064982 | -1.7358908 |
| 31 | 47.1268625 | -1.6825086 |
| 32 | 47.1473446 | -1.6288362 |
| 33 | 47.1679935 | -1.5747556 |
| 34 | 47.1888552 | -1.5201380 |
| 35 | 47.2027659 | -1.5248568 |
| 36 | 47.2167163 | -1.5295893 |
| 37 | 47.2307091 | -1.5343345 |
| 38 | 47.2447457 | -1.5390943 |
| 39 | 47.2588291 | -1.5438695 |
| 40 | 47.2729621 | -1.5486591 |
| 41 | 47.2871461 | -1.5534659 |
| 42 | 47.3013821 | -1.5582906 |
| 43 | 47.3156753 | -1.5631315 |
| 44 | 47.3300257 | -1.5679937 |

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* PHOTO FRAME NUMBER 3 OF 4 *
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## FRAME 23

| | YEAR | MONTH | DAY | HOUR | MINUTE | SECOND |
|---|---|---|---|---|---|---|
| GMT | 67 | 2 | 15 | 10 | 4 | 24.100 |

| | | | | | |
|---|---|---|---|---|---|
| LONGITUDE OF NADIR POINT | = | 46.9566436 DEG | LATITUDE OF NADIR POINT | = | -1.7699095 DEG |
| LONG OF CAMERA AXIS INTERSECT | = | 47.2937264 DEG | LATI OF CAMERA AXIS INTERSECT | = | -1.8987815 DEG |
| SPACECRAFT RADIUS | = | 1790.9837308 KM | SPACECRAFT ALTITUDE | = | 52.8997345 KM |
| MEAN ALTITUDE RATE | = | 0.0438332 KM/SEC | TIME FROM PERIAPSIS | = | 85.6811094 SEC |
| HORIZONTAL VELOCITY | = | 1.9104350 KM/SEC | TRUE ANOMALY | = | 5.2439106 DEG |
| SCALE FACTOR (HIGH) | = | 0.0112851 M/KM | TILT DISTANCE (HIGH) | = | 126.0975561 MM |
| SCALE FACTOR (LOW) | = | 0.0014800 M/KM | TILT DISTANCE (LOW) | = | 16.5373843 MM |
| IMAGE MOTION COMPENSATION (V/H) | = | 0.0347759 RAD/SEC | SWING ANGLE | = | 270.0784073 DEG |
| EMISSION ANGLE | = | 12.0402415 DEG | INCIDENCE ANGLE | = | 63.4778552 DEG |
| PHASE ANGLE | = | 74.8379116 DEG | NORTH DEVIATION ANGLE | = | 339.5731926 DEG |
| TILT ANGLE | = | 11.6795202 DEG | RESOLUTION CONSTANT | = | 1.1729576 MTR |
| TILT AZIMUTH | = | 110.9376736 DEG | SUN AZIMUTH AT PRINCIPAL GND PT | = | 90.7304821 DEG |
| SUN ANGLE AT NADIR | = | 63.8164582 DEG | SUN ARC AT NADIR | = | 1935.8973846 KM |
| LONGITUDE DISTANCE TO TARGET | = | -0.2103562 DEG | LATITUDE DISTANCE TO TARGET | = | 0.0630905 DEG |
| LONGITUDE ARC LENGTH TO TARGET | = | -6.3812391 KM | LATITUDE ARC LENGTH TO TARGET | = | 1.9138766 KM |
| FORWARD OVERLAP RATIO | = | 7.7227691 PCT | SIDE OVERLAP RATIO | = | 0. PCT |
| TIME BETWEEN PHOTOS | = | 2.4001479 SEC | ALPHA | = | -11.4240144 DEG. |

| | X | Y | Z | MAGNITUDE (KM) |
|---|---|---|---|---|
| DIRECTION COSINES TO TARGET | -0.76504735 | -0.64395277 | -0.00523257 | 53.32977676 |
| CAMERA AXIS | -0.80780512 | -0.58794712 | -0.04206042 | 54.05334473 |
| C1 | -0.86069667 | -0.49757257 | 0.10780905 | 55.53463745 |
| C2 | -0.77568282 | -0.59078129 | -0.22202169 | 55.54051208 |
| C3 | -0.72791193 | -0.65866897 | -0.19052398 | 54.47984314 |
| C4 | -0.81292578 | -0.56546026 | 0.13930675 | 54.47418213 |

| | X | Y | Z | X DOT | Y DOT | Z DOT |
|---|---|---|---|---|---|---|
| STATE VECTOR (1950.0) | -253.9841805 | -1616.8584747 | -727.2585144 | 1.7753161 | -0.0094230 | -0.7069992 |

LONG 48.2100 DEG LONG 47.6511 DEG
LATI -1.4067 DEG LATI -2.8757 DEG

(1) • 47.67273 KM • (2)

LOW RESOLUTION

38.51320 KM 38.52304 KM

(4) • 41.10560 KM • (3)

LONG 46.9890 DEG LONG 46.5061 DEG
LATI -1.0578 DEG LATI -2.3239 DEG

LONG 47.4867 DEG LONG 47.2565 DEG
LATI -1.6263 DEG LATI -2.2305 DEG

(1) • 19.61220 KM • (2)

HIGH RESOLUTION

4.99719 KM 4.99774 KM

(4) • 19.23768 KM • (3)

LONG 47.3306 DEG LONG 47.1048 DEG
LATI -1.5735 DEG LATI -2.1662 DEG

LOW RESOLUTION 23

| INDEX | LONGITUDE | LATITUDE |
|---|---|---|
| 1 | 48.2100306 | -1.4066911 |
| 2 | 48.1539683 | -1.5508277 |
| 3 | 48.1007948 | -1.6881794 |
| 4 | 48.0497708 | -1.8205724 |
| 5 | 48.0002608 | -1.9495946 |
| 6 | 47.9517021 | -2.0766805 |
| 7 | 47.9035702 | -2.2031791 |
| 8 | 47.8553629 | -2.3304152 |
| 9 | 47.8065710 | -2.4597432 |
| 10 | 47.7566624 | -2.5926117 |
| 11 | 47.7050529 | -2.7306302 |
| 12 | 47.6510773 | -2.8756573 |
| 13 | 47.5249691 | -2.8143393 |
| 14 | 47.4068599 | -2.7570340 |
| 15 | 47.2951713 | -2.7029560 |
| 16 | 47.1885958 | -2.6514521 |
| 17 | 47.0860209 | -2.6019750 |
| 18 | 46.9864817 | -2.5540484 |
| 19 | 46.8891129 | -2.5072497 |
| 20 | 46.7931266 | -2.4611971 |
| 21 | 46.6977749 | -2.4155271 |
| 22 | 46.6023321 | -2.3698920 |
| 23 | 46.5060682 | -2.3239462 |
| 24 | 46.5537615 | -2.1995198 |
| 25 | 46.5991702 | -2.0809272 |
| 26 | 46.6428957 | -1.9666163 |
| 27 | 46.6854587 | -1.8552339 |
| 28 | 46.7273307 | -1.7455555 |
| 29 | 46.7689519 | -1.6364330 |
| 30 | 46.8107524 | -1.5267385 |
| 31 | 46.8531690 | -1.4153228 |
| 32 | 46.8966656 | -1.3009632 |
| 33 | 46.9417553 | -1.1823006 |
| 34 | 46.9890251 | -1.0577811 |
| 35 | 47.0913806 | -1.0875155 |
| 36 | 47.1929173 | -1.1169237 |
| 37 | 47.2944117 | -1.1462338 |
| 38 | 47.3966351 | -1.1756651 |
| 39 | 47.5003858 | -1.2054455 |
| 40 | 47.6065078 | -1.2358126 |
| 41 | 47.7159271 | -1.2670240 |
| 42 | 47.8296790 | -1.2993624 |
| 43 | 47.9489584 | -1.3331530 |
| 44 | 48.0751758 | -1.3687784 |

HIGH RESOLUTION 23

| INDEX | LONGITUDE | LATITUDE |
|---|---|---|
| 1 | 47.4866843 | -1.6263414 |
| 2 | 47.4653459 | -1.6821492 |
| 3 | 47.4442315 | -1.7374106 |
| 4 | 47.4232917 | -1.7922561 |
| 5 | 47.4024806 | -1.8468063 |
| 6 | 47.3817511 | -1.9011840 |
| 7 | 47.3610554 | -1.9555087 |
| 8 | 47.3403511 | -2.0098992 |
| 9 | 47.3195910 | -2.0644759 |
| 10 | 47.2987294 | -2.1193590 |
| 11 | 47.2777185 | -2.1746724 |
| 12 | 47.2565131 | -2.2305468 |
| 13 | 47.2424545 | -2.2245789 |
| 14 | 47.2284551 | -2.2186384 |
| 15 | 47.2145119 | -2.2127225 |
| 16 | 47.2006249 | -2.2068298 |
| 17 | 47.1867890 | -2.2009610 |
| 18 | 47.1730042 | -2.1951126 |
| 19 | 47.1592660 | -2.1892856 |
| 20 | 47.1455746 | -2.1834791 |
| 21 | 47.1319251 | -2.1776905 |
| 22 | 47.1183186 | -2.1719216 |
| 23 | 47.1047506 | -2.1661688 |
| 24 | 47.1255851 | -2.1113771 |
| 25 | 47.1462202 | -2.0571308 |
| 26 | 47.1667061 | -2.0033047 |
| 27 | 47.1870861 | -1.9497757 |
| 28 | 47.2074070 | -1.8964276 |
| 29 | 47.2277126 | -1.8431419 |
| 30 | 47.2480474 | -1.7898015 |
| 31 | 47.2684565 | -1.7362904 |
| 32 | 47.2889853 | -1.6824890 |
| 33 | 47.3096786 | -1.6282769 |
| 34 | 47.3305883 | -1.5735270 |
| 35 | 47.3445401 | -1.5782526 |
| 36 | 47.3585348 | -1.5829911 |
| 37 | 47.3725710 | -1.5877423 |
| 38 | 47.3866539 | -1.5925089 |
| 39 | 47.4007835 | -1.5972909 |
| 40 | 47.4149623 | -1.6020883 |
| 41 | 47.4291935 | -1.6069019 |
| 42 | 47.4434795 | -1.6117342 |
| 43 | 47.4578214 | -1.6165837 |
| 44 | 47.4722223 | -1.6214527 |

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* PHOTO FRAME NUMBER 4 OF 4 *
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FRAME 24

| | YEAR | MONTH | DAY | HOUR | MINUTE | SECOND |
|---|---|---|---|---|---|---|
| GMT | 67 | 2 | 15 | 10 | 4 | 26.509 |

| | | | | | |
|---|---|---|---|---|---|
| LONGITUDE OF NADIR POINT | = | 47.0934305 | DEG | LATITUDE OF NADIR POINT | = -1.8222338 DEG |
| LONG OF CAMERA AXIS INTERSECT | = | 47.4355865 | DEG | LATI OF CAMERA AXIS INTERSECT | = -1.9530055 DEG |
| SPACECRAFT RADIUS | = | 1791.0964355 | KM | SPACECRAFT ALTITUDE | = 53.0064392 KM |
| MEAN ALTITUDE RATE | = | 0.0450563 | KM/SEC | TIME FROM PERIAPSIS | = 88.0825882 SEC |
| HORIZONTAL VELOCITY | = | 1.9103210 | KM/SEC | TRUE ANOMALY | = 5.3906717 DEG |
| SCALE FACTOR (HIGH) | = | 0.0112562 | M/KM | TILT DISTANCE (HIGH) | = 127.7270412 MM |
| SCALE FACTOR (LOW) | = | 0.0014762 | M/KM | TILT DISTANCE (LOW) | = 16.7510872 MM |
| IMAGE MOTION COMPENSATION (V/H) | = | 0.0346730 | RAD/SEC | SWING ANGLE | = 270.0778732 DEG |
| EMISSION ANGLE | = | 12.1923468 | DEG | INCIDENCE ANGLE | = 63.3350711 DEG |
| PHASE ANGLE | = | 74.8379126 | DEG | NORTH DEVIATION ANGLE | = 339.5885849 DEG |
| TILT ANGLE | = | 11.8262235 | DEG | RESOLUTION CONSTANT | = 1.1759714 MTR |
| TILT AZIMUTH | = | 110.9328566 | DEG | SUN AZIMUTH AT PRINCIPAL GND PT | = 90.6994467 DEG |
| SUN ANGLE AT NADIR | = | 63.6786933 | DEG | SUN ARC AT NADIR | = 1931.7182312 KM |
| LONGITUDE DISTANCE TO TARGET | = | -0.0735693 | DEG | LATITUDE DISTANCE TO TARGET | = 0.0107662 DEG |
| LONGITUDE ARC LENGTH TO TARGET | = | -2.2317536 | KM | LATITUDE ARC LENGTH TO TARGET | = 0.3265963 KM |
| FORWARD OVERLAP RATIO | = | 7.9168010 | PCT | SIDE OVERLAP RATIO | = 0. PCT |
| TIME BETWEEN PHOTOS | = | 2.3998260 | SEC | ALPHA | = -11.5688113 DEG. |

| | X | Y | Z | MAGNITUDE (KM) |
|---|---|---|---|---|
| DIRECTION COSINES TO TARGET | | | | |
| CAMERA AXIS | -0.71077354 | -0.70295430 | 0.02561691 | 53.05576229 |
| C1 | -0.80780860 | -0.58794233 | -0.04206032 | 54.19223022 |
| C2 | -0.86069959 | -0.49756747 | 0.10780916 | 55.68446350 |
| C3 | -0.77568634 | -0.59077670 | -0.22202160 | 55.69041443 |
| C4 | -0.72791586 | -0.65866467 | -0.19052390 | 54.61314392 |
| | -0.81292912 | -0.56545545 | 0.13930685 | 54.60742187 |

| | X | Y | Z | X DOT | Y DOT | Z DOT |
|---|---|---|---|---|---|---|
| STATE VECTOR (1950.0) | -249.7210255 | -1616.8771210 | -728.9542313 | 1.7758313 | -0.0061098 | -0.7055090 |

LONG 48.3556 DEG
LATI -1.4592 DEG

LONG 47.7947 DEG
LATI -2.9336 DEG

(1) • 47.84597 KM • (2)

LOW RESOLUTION

38.64440 KM 38.65434 KM

(4) • 41.17492 KM • (3)

LONG 47.1300 DEG
LATI -1.1105 DEG

LONG 46.6463 DEG
LATI -2.3788 DEG

LONG 47.6291 DEG
LATI -1.6798 DEG

LONG 47.3983 DEG
LATI -2.2857 DEG

(1) • 19.66512 KM • (2)

HIGH RESOLUTION

5.01300 KM 5.01356 KM

(4) • 19.28474 KM • (3)

LONG 47.4725 DEG
LATI -1.6269 DEG

LONG 47.2461 DEG
LATI -2.2210 DEG

LOW RESOLUTION 24

| INDEX | LONGITUDE | LATITUDE |
|---|---|---|
| 1 | 48.3555946 | -1.4591948 |
| 2 | 48.2993307 | -1.6038599 |
| 3 | 48.2459679 | -1.7417144 |
| 4 | 48.1947641 | -1.8745906 |
| 5 | 48.1450830 | -2.0040833 |
| 6 | 48.0963578 | -2.1316328 |
| 7 | 48.0480628 | -2.2585950 |
| 8 | 47.9996924 | -2.3862965 |
| 9 | 47.9507380 | -2.5160991 |
| 10 | 47.9006639 | -2.6494568 |
| 11 | 47.8488846 | -2.7879867 |
| 12 | 47.7947330 | -2.9335542 |
| 13 | 47.6680236 | -2.8717923 |
| 14 | 47.5494027 | -2.8140994 |
| 15 | 47.4372759 | -2.7596756 |
| 16 | 47.3303227 | -2.7078635 |
| 17 | 47.2274218 | -2.6581081 |
| 18 | 47.1276011 | -2.6099271 |
| 19 | 47.0299916 | -2.5628987 |
| 20 | 46.9337997 | -2.5166327 |
| 21 | 46.8382745 | -2.4707671 |
| 22 | 46.7426891 | -2.4249519 |
| 23 | 46.6463127 | -2.3788379 |
| 24 | 46.6940775 | -2.2541955 |
| 25 | 46.7395535 | -2.1353988 |
| 26 | 46.7833438 | -2.0208916 |
| 27 | 46.8259702 | -1.9093179 |
| 28 | 46.8679061 | -1.7994517 |
| 29 | 46.9095912 | -1.6901414 |
| 30 | 46.9514551 | -1.5802590 |
| 31 | 46.9939365 | -1.4686546 |
| 32 | 47.0375013 | -1.3540978 |
| 33 | 47.0826612 | -1.2352337 |
| 34 | 47.1300044 | -1.1105016 |
| 35 | 47.2325592 | -1.1401677 |
| 36 | 47.3343253 | -1.1695179 |
| 37 | 47.4360819 | -1.1987784 |
| 38 | 47.5386047 | -1.2281696 |
| 39 | 47.6426921 | -1.2579193 |
| 40 | 47.7491970 | -1.2882624 |
| 41 | 47.8590469 | -1.3194593 |
| 42 | 47.9732895 | -1.3517952 |
| 43 | 48.0931301 | -1.3855952 |
| 44 | 48.2199917 | -1.4212428 |

HIGH RESOLUTION 24

| INDEX | LONGITUDE | LATITUDE |
|---|---|---|
| 1 | 47.6290956 | -1.6798329 |
| 2 | 47.6077023 | -1.7357927 |
| 3 | 47.5865335 | -1.7912060 |
| 4 | 47.5655427 | -1.8462001 |
| 5 | 47.5446777 | -1.9008997 |
| 6 | 47.5238962 | -1.9554259 |
| 7 | 47.5031495 | -2.0098984 |
| 8 | 47.4823923 | -2.0644374 |
| 9 | 47.4615812 | -2.1191626 |
| 10 | 47.4406676 | -2.1741960 |
| 11 | 47.4196057 | -2.2296623 |
| 12 | 47.3983469 | -2.2856877 |
| 13 | 47.3842425 | -2.2796960 |
| 14 | 47.3701987 | -2.2737298 |
| 15 | 47.3562112 | -2.2677884 |
| 16 | 47.3422799 | -2.2618717 |
| 17 | 47.3284016 | -2.2559773 |
| 18 | 47.3145747 | -2.2501059 |
| 19 | 47.3007956 | -2.2442550 |
| 20 | 47.2870631 | -2.2384263 |
| 21 | 47.2733755 | -2.2326146 |
| 22 | 47.2597299 | -2.2268226 |
| 23 | 47.2461228 | -2.2210486 |
| 24 | 47.2670040 | -2.1661210 |
| 25 | 47.2876859 | -2.1117391 |
| 26 | 47.3082166 | -2.0577797 |
| 27 | 47.3286438 | -2.0041183 |
| 28 | 47.3490100 | -1.9506380 |
| 29 | 47.3693614 | -1.8972199 |
| 30 | 47.3897414 | -1.8437481 |
| 31 | 47.4101973 | -1.7901038 |
| 32 | 47.4307728 | -1.7361700 |
| 33 | 47.4515147 | -1.6818231 |
| 34 | 47.4724712 | -1.6269391 |
| 35 | 47.4864683 | -1.6316707 |
| 36 | 47.5005364 | -1.6364134 |
| 37 | 47.5145898 | -1.6411723 |
| 38 | 47.5287175 | -1.6459458 |
| 39 | 47.5428948 | -1.6507346 |
| 40 | 47.5571213 | -1.6555396 |
| 41 | 47.5714016 | -1.6603594 |
| 42 | 47.5857358 | -1.6652001 |
| 43 | 47.6001291 | -1.6700581 |
| 44 | 47.6145806 | -1.6749348 |

**********
* PHOTO FRAME NUMBER 1 OF 8 *
**********

## FRAME 25

| | YEAR | MONTH | DAY | HOUR | MINUTE | SECOND |
|---|---|---|---|---|---|---|
| GMT | 67 | 2 | 15 | 13 | 32 | 3.599 |

| | | | | | |
|---|---|---|---|---|---|
| LONGITUDE OF NADIR POINT | = | 41.9922342 | DEG | LATITUDE OF NADIR POINT | = -0.4545303 DEG |
| LONG OF CAMERA AXIS INTERSECT | = | 41.9525971 | DEG | LATI OF CAMERA AXIS INTERSECT | = -0.5396242 DEG |
| SPACECRAFT RADIUS | = | 1789.1078644 | KM | SPACECRAFT ALTITUDE | = 51.0178680 KM |
| MEAN ALTITUDE RATE | = | 0.0162199 | KM/SEC | TIME FROM PERIAPSIS | = 31.6316049 SEC |
| HORIZONTAL VELOCITY | = | 1.9123589 | KM/SEC | TRUE ANOMALY | = 1.9375868 DEG |
| SCALE FACTOR (HIGH) | = | 0.0119375 | M/KM | TILT DISTANCE (HIGH) | = 34.0469866 MM |
| SCALE FACTOR (LOW) | = | 0.0015656 | M/KM | TILT DISTANCE (LOW) | = 4.4651785 MM |
| IMAGE MOTION COMPENSATION (V/H) | = | 0.0374224 | RAD/SEC | SWING ANGLE | = 4.0273361 DEG |
| EMISSION ANGLE | = | 3.2885180 | DEG | INCIDENCE ANGLE | = 67.0869627 DEG |
| PHASE ANGLE | = | 65.8061800 | DEG | NORTH DEVIATION ANGLE | = 339.0155678 DEG |
| TILT ANGLE | = | 3.1946339 | DEG | RESOLUTION CONSTANT | = 1.1088615 MTR |
| TILT AZIMUTH | = | 204.9752121 | DEG | SUN AZIMUTH AT PRINCIPAL GND PT | = 91.4003143 DEG |
| SUN ANGLE AT NADIR | = | 67.0494461 | DEG | SUN ARC AT NADIR | = 2033.9713440 KM |
| LONGITUDE DISTANCE TO TARGET | = | -0.4247656 | DEG | LATITUDE DISTANCE TO TARGET | = 0.3784697 DEG |
| LONGITUDE ARC LENGTH TO TARGET | = | -12.8854312 | KM | LATITUDE ARC LENGTH TO TARGET | = 11.4810271 KM |
| FORWARD OVERLAP RATIO | = | 0. | PCT | SIDE OVERLAP RATIO | = 0. PCT |
| TIME BETWEEN PHOTOS | = | 0. | SEC | ALPHA | = 1.2465732 DEG. |

| | X | Y | Z | MAGNITUDE (KM) |
|---|---|---|---|---|
| DIRECTION COSINES TO TARGET | -0.86520709 | -0.45744268 | -0.20533603 | 53.93868923 |
| CAMERA AXIS | -0.72661319 | -0.68572520 | -0.04259367 | 51.09960937 |
| C1 | -0.79090778 | -0.60251437 | 0.10696584 | 51.45500183 |
| C2 | -0.69394789 | -0.68479215 | -0.22247709 | 52.52607727 |
| C3 | -0.63803089 | -0.74601533 | -0.19072945 | 52.54545593 |
| C4 | -0.73499078 | -0.66373725 | 0.13871346 | 51.47358704 |

| | X | Y | Z | X DOT | Y DOT | Z DOT |
|---|---|---|---|---|---|---|
| STATE VECTOR (1950.0) | -348.8442230 | -1615.8603821 | -684.2586594 | 1.7634948 | -0.0875516 | -0.7347118 |

LONG 42.7224 DEG
LATI -0.1151 DEG

LONG 42.2557 DEG
LATI -1.4101 DEG

(1) • 41.75779 KM • (2)

LOW RESOLUTION

34.44922 KM 36.10711 KM

(4) • 41.87532 KM • (3)

LONG 41.6624 DEG
LATI 0.2925 DEG

LONG 41.1431 DEG
LATI -0.9865 DEG

LONG 42.1302 DEG
LATI -0.2864 DEG

LONG 41.9148 DEG
LATI -0.8531 DEG

(1) • 18.38987 KM • (2)

HIGH RESOLUTION

4.56933 KM 4.66446 KM

(4) • 18.39660 KM • (3)

LONG 41.9895 DEG
LATI -0.2325 DEG

LONG 41.8712 DEG
LATI -0.7983 DEG

LOW RESOLUTION 25

| INDEX | LONGITUDE | LATITUDE |
|---|---|---|
| 1 | 42.7223520 | -0.1150597 |
| 2 | 42.6779461 | -0.2368564 |
| 3 | 42.6353397 | -0.3540036 |
| 4 | 42.5940046 | -0.4679132 |
| 5 | 42.5534754 | -0.5798566 |
| 6 | 42.5133181 | -0.6910171 |
| 7 | 42.4731174 | -0.8025464 |
| 8 | 42.4324541 | -0.9156090 |
| 9 | 42.3908911 | -1.0314371 |
| 10 | 42.3479481 | -1.1513880 |
| 11 | 42.3030868 | -1.2770063 |
| 12 | 42.2556653 | -1.4101241 |
| 13 | 42.1489835 | -1.3689697 |
| 14 | 42.0458941 | -1.3293110 |
| 15 | 41.9454679 | -1.2907777 |
| 16 | 41.8468647 | -1.2530409 |
| 17 | 41.7493000 | -1.2157984 |
| 18 | 41.6520243 | -1.1787609 |
| 19 | 41.5542989 | -1.1416482 |
| 20 | 41.4553690 | -1.1041743 |
| 21 | 41.3544397 | -1.0660448 |
| 22 | 41.2506566 | -1.0269428 |
| 23 | 41.1430631 | -0.9865201 |
| 24 | 41.1968989 | -0.8554137 |
| 25 | 41.2476048 | -0.7316191 |
| 26 | 41.2959337 | -0.6133399 |
| 27 | 41.3425217 | -0.4990614 |
| 28 | 41.3879213 | -0.3874519 |
| 29 | 41.4326320 | -0.2772954 |
| 30 | 41.4771218 | -0.1674438 |
| 31 | 41.5218549 | -0.0567589 |
| 32 | 41.5672975 | 0.0559341 |
| 33 | 41.6139536 | 0.1718920 |
| 34 | 41.6623812 | 0.2925250 |
| 35 | 41.7645578 | 0.2528664 |
| 36 | 41.8631926 | 0.2146566 |
| 37 | 41.9591823 | 0.1775422 |
| 38 | 42.0533352 | 0.1412048 |
| 39 | 42.1463995 | 0.1053540 |
| 40 | 42.2390885 | 0.0697132 |
| 41 | 42.3321066 | 0.0340109 |
| 42 | 42.4261651 | -0.0020251 |
| 43 | 42.5220089 | -0.0386759 |
| 44 | 42.6204405 | -0.0762428 |

HIGH RESOLUTION 25

| INDEX | LONGITUDE | LATITUDE |
|---|---|---|
| 1 | 42.1301899 | -0.2864334 |
| 2 | 42.1106544 | -0.3378126 |
| 3 | 42.0912399 | -0.3888828 |
| 4 | 42.0719018 | -0.4397549 |
| 5 | 42.0525990 | -0.4905425 |
| 6 | 42.0332875 | -0.5413540 |
| 7 | 42.0139270 | -0.5923012 |
| 8 | 41.9944730 | -0.6434986 |
| 9 | 41.9748840 | -0.6950588 |
| 10 | 41.9551139 | -0.7470997 |
| 11 | 41.9351163 | -0.7997443 |
| 12 | 41.9148436 | -0.8531196 |
| 13 | 41.9017758 | -0.8481259 |
| 14 | 41.8887143 | -0.8431348 |
| 15 | 41.8756595 | -0.8381470 |
| 16 | 41.8626075 | -0.8331618 |
| 17 | 41.8495564 | -0.8281784 |
| 18 | 41.8365054 | -0.8231949 |
| 19 | 41.8234529 | -0.8182114 |
| 20 | 41.8103962 | -0.8132271 |
| 21 | 41.7973342 | -0.8082419 |
| 22 | 41.7842631 | -0.8032550 |
| 23 | 41.7711844 | -0.7982647 |
| 24 | 41.7917652 | -0.7449832 |
| 25 | 41.8120613 | -0.6924318 |
| 26 | 41.8321218 | -0.6404805 |
| 27 | 41.8519955 | -0.5890073 |
| 28 | 41.8717241 | -0.5378953 |
| 29 | 41.8913565 | -0.4870292 |
| 30 | 41.9109340 | -0.4362980 |
| 31 | 41.9304981 | -0.3855906 |
| 32 | 41.9500942 | -0.3347962 |
| 33 | 41.9697628 | -0.2838029 |
| 34 | 41.9895487 | -0.2324971 |
| 35 | 42.0023503 | -0.2374097 |
| 36 | 42.0151448 | -0.2423172 |
| 37 | 42.0279322 | -0.2472221 |
| 38 | 42.0407133 | -0.2521253 |
| 39 | 42.0534916 | -0.2570260 |
| 40 | 42.0662684 | -0.2619258 |
| 41 | 42.0790448 | -0.2668247 |
| 42 | 42.0918231 | -0.2717254 |
| 43 | 42.1046062 | -0.2766261 |
| 44 | 42.1173940 | -0.2815284 |

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* PHOTO FRAME NUMBER 2 OF 8 *
**********

## FRAME 26

| | YEAR | MONTH | DAY | HOUR | MINUTE | SECOND |
|---|---|---|---|---|---|---|
| GMT | 67 | 2 | 15 | 13 | 32 | 5.899 |

| | | | | | |
|---|---|---|---|---|---|
| LONGITUDE OF NADIR POINT | = | 42.1235914 | DEG | LATITUDE OF NADIR POINT | = | -0.5044692 | DEG |
| LONG OF CAMERA AXIS INTERSECT | = | 42.0877948 | DEG | LATI OF CAMERA AXIS INTERSECT | = | -0.5910948 | DEG |
| SPACECRAFT RADIUS | = | 1789.1465302 | KM | SPACECRAFT ALTITUDE | = | 51.0565338 | KM |
| MEAN ALTITUDE RATE | = | 0.0173996 | KM/SEC | TIME FROM PERIAPSIS | = | 33.9338288 | SEC |
| HORIZONTAL VELOCITY | = | 1.9123175 | KM/SEC | TRUE ANOMALY | = | 2.0785783 | DEG |
| SCALE FACTOR (HIGH) | = | 0.0119285 | M/KM | TILT DISTANCE (HIGH) | = | 33.9700003 | MM |
| SCALE FACTOR (LOW) | = | 0.0015644 | M/KM | TILT DISTANCE (LOW) | = | 4.4553820 | MM |
| IMAGE MOTION COMPENSATION (V/H) | = | 0.0373945 | RAD/SEC | SWING ANGLE | = | 1.5003803 | DEG |
| EMISSION ANGLE | = | 3.2811647 | DEG | INCIDENCE ANGLE | = | 66.9502401 | DEG |
| PHASE ANGLE | = | 65.8061810 | DEG | NORTH DEVIATION ANGLE | = | 339.0157204 | DEG |
| TILT ANGLE | = | 3.1874252 | DEG | RESOLUTION CONSTANT | = | 1.1096939 | MTR |
| TILT AZIMUTH | = | 202.4511833 | DEG | SUN AZIMUTH AT PRINCIPAL GND PT | = | 91.3785496 | DEG |
| SUN ANGLE AT NADIR | = | 66.9165678 | DEG | SUN ARC AT NADIR | = | 2029.9404144 | KM |
| LONGITUDE DISTANCE TO TARGET | = | -0.2934084 | DEG | LATITUDE DISTANCE TO TARGET | = | 0.3285308 | DEG |
| LONGITUDE ARC LENGTH TO TARGET | = | -8.9006590 | KM | LATITUDE ARC LENGTH TO TARGET | = | 9.9661101 | KM |
| FORWARD OVERLAP RATIO | = | 4.9699497 | PCT | SIDE OVERLAP RATIO | = | 0. | PCT |
| TIME BETWEEN PHOTOS | = | 2.3000479 | SEC | ALPHA | = | 1.1085947 | DEG. |

| | X | Y | Z | MAGNITUDE (KM) |
|---|---|---|---|---|
| DIRECTION COSINES TO TARGET | -0.83178549 | -0.52505549 | -0.18013782 | 52.82551718 |
| CAMERA AXIS | -0.72661709 | -0.68572107 | -0.04259359 | 51.13796997 |
| C1 | -0.79091119 | -0.60250957 | 0.10696592 | 51.49954224 |
| C2 | -0.69395181 | -0.68478821 | -0.22247700 | 52.57153320 |
| C3 | -0.63803515 | -0.74601170 | -0.19072937 | 52.57875061 |
| C4 | -0.73499453 | -0.66373307 | 0.13871354 | 51.50645447 |

| | X | Y | Z | X DOT | Y DOT | Z DOT |
|---|---|---|---|---|---|---|
| STATE VECTOR (1950.0) | -344.7874184 | -1616.0580902 | -685.9469376 | 1.7641766 | -0.0843700 | -0.7333651 |

LONG 42.8588 DEG
LATI -0.1659 DEG

LONG 42.3914 DEG
LATI -1.4631 DEG

(1) • 41.82610 KM • (2)

LOW RESOLUTION

34.47494 KM 36.13385 KM

(4) • 41.86985 KM • (3)

LONG 41.7976 DEG
LATI 0.2410 DEG

LONG 41.2784 DEG
LATI -1.0379 DEG

LONG 42.2655 DEG
LATI -0.3377 DEG

LONG 42.0500 DEG
LATI -0.9049 DEG

(1) • 18.40578 KM • (2)

HIGH RESOLUTION

4.57273 KM 4.66792 KM

(4) • 18.40829 KM • (3)

LONG 42.1248 DEG
LATI -0.2838 DEG

LONG 41.9063 DEG
LATI -0.8499 DEG

LOW RESOLUTION 26

| INDEX | LONGITUDE | LATITUDE |
|---|---|---|
| [illegible] | 42.8587661 | -0.1659053 |
| [illegible] | 42.8142920 | -0.2878993 |
| [illegible] | 42.7716179 | -0.4052343 |
| [illegible] | 42.7302194 | -0.5193292 |
| [illegible] | 42.6896281 | -0.6314552 |
| [illegible] | 42.6494102 | -0.7427984 |
| [illegible] | 42.6091480 | -0.8545113 |
| [illegible] | 42.5684252 | -0.9677610 |
| [illegible] | 42.5267992 | -1.0837828 |
| [illegible] | 42.4837933 | -1.2039344 |
| [illegible] | 42.4388642 | -1.3297652 |
| [illegible] | 42.3913736 | -1.4631110 |
| [illegible] | 42.2844810 | -1.4217312 |
| 14 | 42.1812267 | -1.3818685 |
| 15 | 42.0806727 | -1.3431490 |
| 16 | 41.9819746 | -1.3052423 |
| 17 | 41.8843489 | -1.2678445 |
| 18 | 41.7870440 | -1.2306643 |
| 19 | 41.6893191 | -1.1934193 |
| 20 | 41.5904222 | -1.1558234 |
| 21 | 41.4895601 | -1.1175829 |
| 22 | 41.3858814 | -1.0783793 |
| 23 | 41.2784328 | -1.0378643 |
| 24 | 41.3322501 | -0.9067793 |
| 25 | 41.3829412 | -0.7830009 |
| 26 | 41.4312572 | -0.6647379 |
| 27 | 41.4778347 | -0.5504740 |
| 28 | 41.5232234 | -0.4388772 |
| 29 | 41.5679245 | -0.3287336 |
| 30 | 41.6124063 | -0.2188939 |
| 31 | 41.6571307 | -0.1082192 |
| 32 | 41.7025671 | 0.0044613 |
| 33 | 41.7492185 | 0.1204094 |
| 34 | 41.7976394 | 0.2410322 |
| 35 | 41.8997655 | 0.2014965 |
| 36 | 41.9983854 | 0.1633935 |
| 37 | 42.0943913 | 0.1263713 |
| 38 | 42.1885891 | 0.0901132 |
| 39 | 42.2817254 | 0.0543307 |
| 40 | 42.3745165 | 0.0187446 |
| 41 | 42.4676642 | -0.0169133 |
| 42 | 42.5618820 | -0.0529126 |
| 43 | 42.6579194 | -0.0895369 |
| 44 | 42.7565832 | -0.1270902 |

HIGH RESOLUTION 26

| INDEX | LONGITUDE | LATITUDE |
|---|---|---|
| 1 | 42.2655339 | -0.3376914 |
| 2 | 42.2459822 | -0.3891159 |
| 3 | 42.2265506 | -0.4402304 |
| 4 | 42.2071972 | -0.4911469 |
| 5 | 42.1878786 | -0.5419781 |
| 6 | 42.1685514 | -0.5928339 |
| 7 | 42.1491752 | -0.6438273 |
| 8 | 42.1297064 | -0.6950691 |
| 9 | 42.1101012 | -0.7466737 |
| 10 | 42.0903153 | -0.7987607 |
| 11 | 42.0703020 | -0.8514514 |
| 12 | 42.0500140 | -0.9048737 |
| 13 | 42.0369353 | -0.8998672 |
| 14 | 42.0238652 | -0.8948640 |
| 15 | 42.0108008 | -0.8898643 |
| 16 | 41.9977412 | -0.8848672 |
| 17 | 41.9846830 | -0.8798726 |
| 18 | 41.9716253 | -0.8748772 |
| 19 | 41.9585657 | -0.8698835 |
| 20 | 41.9455037 | -0.8648889 |
| 21 | 41.9324355 | -0.8598926 |
| 22 | 41.9193602 | -0.8548938 |
| 23 | 41.9062772 | -0.8498932 |
| 24 | 41.9268689 | -0.7965793 |
| 25 | 41.9471765 | -0.7439929 |
| 26 | 41.9672489 | -0.6920083 |
| 27 | 41.9871340 | -0.6405018 |
| 28 | 42.0068746 | -0.5893565 |
| 29 | 42.0265183 | -0.5384580 |
| 30 | 42.0461073 | -0.4876943 |
| 31 | 42.0656829 | -0.4369537 |
| 32 | 42.0852904 | -0.3861268 |
| 33 | 42.1049705 | -0.3351010 |
| 34 | 42.1247697 | -0.2837611 |
| 35 | 42.1375809 | -0.2886728 |
| 36 | 42.1503825 | -0.2935795 |
| 37 | 42.1631789 | -0.2984835 |
| 38 | 42.1759715 | -0.3033850 |
| 39 | 42.1887593 | -0.3082848 |
| 40 | 42.2015476 | -0.3131838 |
| 41 | 42.2143364 | -0.3180836 |
| 42 | 42.2271276 | -0.3229834 |
| 43 | 42.2399230 | -0.3278832 |
| 44 | 42.2527246 | -0.3327856 |

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* PHOTO FRAME NUMBER 3 OF 8 *
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## FRAME 27

| | YEAR | MONTH | DAY | HOUR | MINUTE | SECOND |
|---|---|---|---|---|---|---|
| GMT | 67 | 2 | 19 | 13 | 32 | 8.199 |

| | | | | | |
|---|---|---|---|---|---|
| LONGITUDE OF NADIR POINT | = | 42.2550039 | DEG | LATITUDE OF NADIR POINT | = | -3.5544269 | DEG |
| LONG OF CAMERA AXIS INTERSECT | = | 42.2230520 | DEG | LATI OF CAMERA AXIS INTERSECT | = | -3.6425910 | DEG |
| SPACECRAFT RADIUS | = | 1789.1879120 | KM | SPACECRAFT ALTITUDE | = | 51.0379156 | KM |
| MEAN ALTITUDE RATE | = | 0.0185798 | KM/SEC | TIME FROM PERIAPSIS | = | 36.2370934 | SEC |
| HORIZONTAL VELOCITY | = | 1.9122732 | KM/SEC | TRUE ANOMALY | = | 2.2196278 | DEG |
| SCALE FACTOR (HIGH) | = | 0.0119189 | M/KM | TILT DISTANCE (HIGH) | = | 33.9588480 | MM |
| SCALE FACTOR (LOW) | = | 0.0015631 | M/KM | TILT DISTANCE (LOW) | = | 4.4536194 | MM |
| IMAGE MOTION COMPENSATION (V/H) | = | 0.0373643 | RAD/SEC | SWING ANGLE | = | 358.9661255 | DEG |
| EMISSION ANGLE | = | 3.2801726 | DEG | INCIDENCE ANGLE | = | 66.8134737 | DEG |
| PHASE ANGLE | = | 65.8061819 | DEG | NORTH DEVIATION ANGLE | = | 339.0161171 | DEG |
| TILT ANGLE | = | 3.1863810 | DEG | RESOLUTION CONSTANT | = | 1.1105923 | MTR |
| TILT AZIMUTH | = | 199.9194546 | DEG | SUN AZIMUTH AT PRINCIPAL GND PT | = | 91.3564930 | DEG |
| SUN ANGLE AT NADIR | = | 66.7836494 | DEG | SUN ARC AT NADIR | = | 2025.9082947 | KM |
| LONGITUDE DISTANCE TO TARGET | = | -0.1619968 | DEG | LATITUDE DISTANCE TO TARGET | = | 0.2785731 | DEG |
| LONGITUDE ARC LENGTH TO TARGET | = | -4.9142379 | KM | LATITUDE ARC LENGTH TO TARGET | = | 8.4506234 | KM |
| FORWARD OVERLAP RATIO | = | 5.0009968 | PCT | SIDE OVERLAP RATIO | = | 0. | PCT |
| TIME BETWEEN PHOTOS | = | 2.3000479 | SEC | ALPHA | = | 0.9705400 | DEG. |

| | X | Y | Z | MAGNITUDE (KM) |
|---|---|---|---|---|
| DIRECTION COSINES TO TARGET | -0.79159561 | -0.59162173 | -0.15284018 | 52.05147600 |
| CAMERA AXIS | -0.72662100 | -0.68571693 | -0.04259350 | 51.17936707 |
| C1 | -0.79091461 | -0.60250506 | 0.10696601 | 51.54716492 |
| C2 | -0.69395573 | -0.68478426 | -0.22247693 | 52.62014771 |
| C3 | -0.63803942 | -0.74600806 | -0.19072930 | 52.61518860 |
| C4 | -0.73499830 | -0.66372888 | 0.13871363 | 51.54240417 |

| | X | Y | Z | X DOT | Y DOT | Z DOT |
|---|---|---|---|---|---|---|
| STATE VECTOR (1950.0) | -340.7272530 | -1616.2485504 | -687.6328659 | 1.7648508 | -0.0811869 | -0.7320145 |

LONG 42.9953 DEG
LATI -0.2167 DEG

(1)

41.89706 KM

LONG 42.5272 DEG
LATI -1.5162 DEG

(2)

LOW RESOLUTION

34.50304 KM

36.16309 KM

(4)

41.86688 KM

(3)

LONG 41.9329 DEG
LATI 0.1896 DEG

LONG 41.4138 DEG
LATI -1.0893 DEG

LONG 42.4009 DEG
LATI -0.3890 DEG

(1)

18.42280 KM

LONG 42.1852 DEG
LATI -0.9567 DEG

(2)

HIGH RESOLUTION

4.57644 KM

4.67170 KM

(4)

18.42108 KM

(3)

LONG 42.2601 DEG
LATI -0.3350 DEG

LONG 42.0414 DEG
LATI -0.9016 DEG

LOW RESOLUTION 27

| INDEX | LONGITUDE | LATITUDE |
|---|---|---|
| 1 | 42.9952931 | -0.2167492 |
| 2 | 42.9507451 | -0.3389473 |
| 3 | 42.9080024 | -0.4564803 |
| 4 | 42.8665380 | -0.5707673 |
| 5 | 42.8258820 | -0.6830838 |
| 6 | 42.7856011 | -0.7946157 |
| 7 | 42.7452765 | -0.9065181 |
| 8 | 42.7044902 | -1.0199632 |
| 9 | 42.6627998 | -1.1361849 |
| 10 | 42.6197281 | -1.2565456 |
| 11 | 42.5747294 | -1.3825976 |
| 12 | 42.5271664 | -1.5161799 |
| 13 | 42.4200578 | -1.4745704 |
| 14 | 42.3166280 | -1.4344994 |
| 15 | 42.2159376 | -1.3955920 |
| 16 | 42.1171403 | -1.3575146 |
| 17 | 42.0194468 | -1.3199579 |
| 18 | 41.9221048 | -1.2826318 |
| 19 | 41.8243752 | -1.2452510 |
| 20 | 41.7255044 | -1.2075330 |
| 21 | 41.6247039 | -1.1691781 |
| 22 | 41.5211215 | -1.1298712 |
| 23 | 41.4138103 | -1.0892615 |
| 24 | 41.4676147 | -0.9581884 |
| 25 | 41.5182929 | -0.8344203 |
| 26 | 41.5665994 | -0.7161667 |
| 27 | 41.6131663 | -0.6019096 |
| 28 | 41.6585479 | -0.4903188 |
| 29 | 41.7032418 | -0.3801820 |
| 30 | 41.7477174 | -0.2703466 |
| 31 | 41.7924366 | -0.1596770 |
| 32 | 41.8378682 | -0.0470011 |
| 33 | 41.8845162 | 0.0689448 |
| 34 | 41.9329348 | 0.1895651 |
| 35 | 42.0350184 | 0.1501497 |
| 36 | 42.1336293 | 0.1121508 |
| 37 | 42.2296562 | 0.0752175 |
| 38 | 42.3239055 | 0.0390371 |
| 39 | 42.4171224 | 0.0033174 |
| 40 | 42.5100198 | -0.0322154 |
| 41 | 42.6033039 | -0.0678272 |
| 42 | 42.6976891 | -0.1037924 |
| 43 | 42.7939267 | -0.1403937 |
| 44 | 42.8928275 | -0.1779341 |

HIGH RESOLUTION 27

| INDEX | LONGITUDE | LATITUDE |
|---|---|---|
| 1 | 42.4009485 | -0.3889596 |
| 2 | 42.3813791 | -0.4404319 |
| 3 | 42.3619308 | -0.4915935 |
| 4 | 42.3425598 | -0.5425586 |
| 5 | 42.3232245 | -0.5934359 |
| 6 | 42.3038802 | -0.6443404 |
| 7 | 42.2844872 | -0.6953807 |
| 8 | 42.2650018 | -0.7466703 |
| 9 | 42.2453799 | -0.7983236 |
| 10 | 42.2255778 | -0.8504593 |
| 11 | 42.2055473 | -0.9032003 |
| 12 | 42.1852417 | -0.9566721 |
| 13 | 42.1721535 | -0.9516528 |
| 14 | 42.1590738 | -0.9466386 |
| 15 | 42.1459994 | -0.9416261 |
| 16 | 42.1329303 | -0.9366170 |
| 17 | 42.1198640 | -0.9316096 |
| 18 | 42.1067977 | -0.9266031 |
| 19 | 42.0937309 | -0.9215966 |
| 20 | 42.0806623 | -0.9165909 |
| 21 | 42.0675874 | -0.9115844 |
| 22 | 42.0545077 | -0.9065753 |
| 23 | 42.0414186 | -0.9015645 |
| 24 | 42.0620236 | -0.8482122 |
| 25 | 42.0823441 | -0.7955890 |
| 26 | 42.1024294 | -0.7435668 |
| 27 | 42.1223259 | -0.6920254 |
| 28 | 42.1420803 | -0.6408433 |
| 29 | 42.1617355 | -0.5899089 |
| 30 | 42.1813378 | -0.5391102 |
| 31 | 42.2009258 | -0.4883329 |
| 32 | 42.2205458 | -0.4374693 |
| 33 | 42.2402396 | -0.3864077 |
| 34 | 42.2600517 | -0.3350336 |
| 35 | 42.2728710 | -0.3399428 |
| 36 | 42.2856846 | -0.3448486 |
| 37 | 42.2984905 | -0.3497509 |
| 38 | 42.3112936 | -0.3546524 |
| 39 | 42.3240948 | -0.3595522 |
| 40 | 42.3368940 | -0.3644512 |
| 41 | 42.3496947 | -0.3693502 |
| 42 | 42.3624988 | -0.3742500 |
| 43 | 42.3753071 | -0.3791506 |
| 44 | 42.3881240 | -0.3840538 |

**********
* PHOTO FRAME NUMBER 4 OF 8 *
**********

## FRAME 28

| | YEAR | MONTH | DAY | HOUR | MINUTE | SECOND |
|---|---|---|---|---|---|---|
| GMT | 67 | 2 | 15 | 13 | 32 | 10.509 |

| | | | | | |
|---|---|---|---|---|---|
| LONGITUDE OF NADIR POINT | = | 42.3863543 | DEG | LATITUDE OF NADIR POINT | = -0.6043556 DEG |
| LONG OF CAMERA AXIS INTERSECT | = | 42.3582525 | DEG | LATI OF CAMERA AXIS INTERSECT | = -0.6940667 DEG |
| SPACECRAFT RADIUS | = | 1789.2319946 | KM | SPACECRAFT ALTITUDE | = 51.1419983 KM |
| MEAN ALTITUDE RATE | = | 0.0197591 | KM/SEC | TIME FROM PERIAPSIS | = 38.5392237 SEC |
| HORIZONTAL VELOCITY | = | 1.9122261 | KM/SEC | TRUE ANOMALY | = 2.3606013 DEG |
| SCALE FACTOR (HIGH) | = | 0.0119085 | M/KM | TILT DISTANCE (HIGH) | = 34.0138383 MM |
| SCALE FACTOR (LOW) | = | 0.0015618 | M/KM | TILT DISTANCE (LOW) | = 4.4608312 MM |
| IMAGE MOTION COMPENSATION (V/H) | = | 0.0373317 | RAD/SEC | SWING ANGLE | = 356.4360733 DEG |
| EMISSION ANGLE | = | 3.2855474 | DEG | INCIDENCE ANGLE | = 66.6767883 DEG |
| PHASE ANGLE | = | 65.8061810 | DEG | NORTH DEVIATION ANGLE | = 339.0167580 DEG |
| TILT ANGLE | = | 3.1915300 | DEG | RESOLUTION CONSTANT | = 1.1115561 MTR |
| TILT AZIMUTH | = | 197.3921833 | DEG | SUN AZIMUTH AT PRINCIPAL GND PT | = 91.3341646 DEG |
| SUN ANGLE AT NADIR | = | 66.6508131 | DEG | SUN ARC AT NADIR | = 2021.8786621 KM |
| LONGITUDE DISTANCE TO TARGET | = | -0.0306458 | DEG | LATITUDE DISTANCE TO TARGET | = 0.2286444 DEG |
| LONGITUDE ARC LENGTH TO TARGET | = | -0.9296538 | KM | LATITUDE ARC LENGTH TO TARGET | = 6.9360172 KM |
| FORWARD OVERLAP RATIO | = | 5.1223626 | PCT | SIDE OVERLAP RATIO | = 0. PCT |
| TIME BETWEEN PHOTOS | = | 2.3000479 | SEC | ALPHA | = 0.8325436 DEG. |

| | X | Y | Z | MAGNITUDE (KM) |
|---|---|---|---|---|
| DIRECTION COSINES TO TARGET | -0.74494174 | -0.65552771 | -0.12387582 | 51.63248825 |
| CAMERA AXIS | -0.72662488 | -0.68571283 | -0.04259341 | 51.22378540 |
| C1 | -0.79091800 | -0.60250060 | 0.10696612 | 51.59783936 |
| C2 | -0.69395962 | -0.68478034 | -0.22247683 | 52.67187500 |
| C3 | -0.63804365 | -0.74600447 | -0.19072921 | 52.65470886 |
| C4 | -0.73500203 | -0.66372473 | 0.13871372 | 51.58137512 |

| | X | Y | Z | X DOT | Y DOT | Z DOT |
|---|---|---|---|---|---|---|
| STATE VECTOR (1950.0) | -336.6673241 | -1616.4316254 | -689.3149414 | 1.7655166 | -0.0780050 | -0.7306614 |

LONG 43.1318 DEG
LATI -0.2675 DEG

LONG 42.6629 DEG
LATI -1.5693 DEG

(1) • 41.97061 KM • (2)

LOW RESOLUTION

34.53347 KM 36.19484 KM

(4) • 41.86641 KM • (3)

LONG 42.0681 DEG
LATI 0.1382 DEG

LONG 41.5491 DEG
LATI -1.1407 DEG

LONG 42.5363 DEG
LATI -0.4402 DEG

LONG 42.3204 DEG
LATI -1.0085 DEG

(1) • 18.44091 KM • (2)

HIGH RESOLUTION

4.58044 KM 4.67578 KM

(4) • 18.43495 KM • (3)

LONG 42.3953 DEG
LATI -0.3863 DEG

LONG 42.1765 DEG
LATI -0.9532 DEG

LOW RESOLUTION 28

| INDEX | LONGITUDE | LATITUDE |
|---|---|---|
| 1 | 43.1318102 | -0.2675462 |
| 2 | 43.0871887 | -0.3899560 |
| 3 | 43.0443745 | -0.5076931 |
| 4 | 43.0028419 | -0.6221790 |
| 5 | 42.9621191 | -0.7346918 |
| 6 | 42.9217725 | -0.8464201 |
| 7 | 42.8813829 | -0.9585214 |
| 8 | 42.8405304 | -1.0721672 |
| 9 | 42.7987738 | -1.1885972 |
| 10 | 42.7556334 | -1.3091748 |
| 11 | 42.7105637 | -1.4354564 |
| 12 | 42.6629272 | -1.5692820 |
| 13 | 42.5555921 | -1.5274394 |
| 14 | 42.4519806 | -1.4871593 |
| 15 | 42.3511496 | -1.4480607 |
| 16 | 42.2522435 | -1.4098082 |
| 17 | 42.1544743 | -1.3720902 |
| 18 | 42.0570917 | -1.3346155 |
| 19 | 41.9593496 | -1.2970999 |
| 20 | 41.8604994 | -1.2592546 |
| 21 | 41.7597528 | -1.2207844 |
| 22 | 41.6562591 | -1.1813700 |
| 23 | 41.5490780 | -1.1406655 |
| 24 | 41.6028719 | -1.0095959 |
| 25 | 41.6535411 | -0.8858303 |
| 26 | 41.7018390 | -0.7675784 |
| 27 | 41.7484002 | -0.6533221 |
| 28 | 41.7937760 | -0.5417335 |
| 29 | 41.8384652 | -0.4315928 |
| 30 | 41.8829379 | -0.3217565 |
| 31 | 41.9276547 | -0.2110844 |
| 32 | 41.9730849 | -0.0984059 |
| 33 | 42.0197315 | 0.0175442 |
| 34 | 42.0681496 | 0.1381679 |
| 35 | 42.1701970 | 0.0988713 |
| 36 | 42.2688060 | 0.0609748 |
| 37 | 42.3648624 | 0.0241285 |
| 38 | 42.4591675 | -0.0119790 |
| 39 | 42.5524702 | -0.0476354 |
| 40 | 42.6454821 | -0.0831149 |
| 41 | 42.7389092 | -0.1186839 |
| 42 | 42.8334665 | -0.1546184 |
| 43 | 42.9299126 | -0.1911983 |
| 44 | 43.0290585 | -0.2287285 |

HIGH RESOLUTION 28

| INDEX | LONGITUDE | LATITUDE |
|---|---|---|
| 1 | 42.5363150 | -0.4401912 |
| 2 | 42.5167274 | -0.4917156 |
| 3 | 42.4972606 | -0.5429275 |
| 4 | 42.4778728 | -0.5939421 |
| 5 | 42.4585180 | -0.6448714 |
| 6 | 42.4391570 | -0.6958264 |
| 7 | 42.4197459 | -0.7469170 |
| 8 | 42.4002423 | -0.7982579 |
| 9 | 42.3806033 | -0.8499624 |
| 10 | 42.3607826 | -0.9021502 |
| 11 | 42.3407340 | -0.9549424 |
| 12 | 42.3204107 | -1.0084689 |
| 13 | 42.3073111 | -1.0034359 |
| 14 | 42.2942195 | -0.9984089 |
| 15 | 42.2811356 | -0.9933844 |
| 16 | 42.2680559 | -0.9883625 |
| 17 | 42.2549810 | -0.9833432 |
| 18 | 42.2419062 | -0.9783247 |
| 19 | 42.2288318 | -0.9733071 |
| 20 | 42.2157540 | -0.9682894 |
| 21 | 42.2026739 | -0.9632710 |
| 22 | 42.1895866 | -0.9582508 |
| 23 | 42.1764922 | -0.9532297 |
| 24 | 42.1971111 | -0.8998364 |
| 25 | 42.2174444 | -0.8471731 |
| 26 | 42.2375436 | -0.7951108 |
| 27 | 42.2574530 | -0.7435301 |
| 28 | 42.2772212 | -0.6923097 |
| 29 | 42.2968903 | -0.6413360 |
| 30 | 42.3165059 | -0.5904972 |
| 31 | 42.3361082 | -0.5396831 |
| 32 | 42.3557425 | -0.4887803 |
| 33 | 42.3754497 | -0.4376794 |
| 34 | 42.3952756 | -0.3862660 |
| 35 | 42.4081068 | -0.3911735 |
| 36 | 42.4209294 | -0.3960792 |
| 37 | 42.4337482 | -0.4009816 |
| 38 | 42.4465623 | -0.4058823 |
| 39 | 42.4593759 | -0.4107812 |
| 40 | 42.4721885 | -0.4156802 |
| 41 | 42.4850025 | -0.4205791 |
| 42 | 42.4978209 | -0.4254789 |
| 43 | 42.5106444 | -0.4303813 |
| 44 | 42.5234756 | -0.4352854 |

**********
* PHOTO FRAME NUMBER 5 OF 8 *
**********

## FRAME 29

| | YEAR | MONTH | DAY | HOUR | MINUTE | SECOND |
|---|---|---|---|---|---|---|
| GMT | 67 | 2 | 15 | 13 | 32 | 12.699 |

| | | | | | |
|---|---|---|---|---|---|
| LONGITUDE OF NADIR POINT | = | 42.5119882 | DEG | LATITUDE OF NADIR POINT | = | -3.6521697 DEG |
| LONG OF CAMERA AXIS INTERSECT | = | 42.4875722 | DEG | LATI OF CAMERA AXIS INTERSECT | = | -3.7433056 DEG |
| SPACECRAFT RADIUS | = | 1789.2767029 | KM | SPACECRAFT ALTITUDE | = | 51.1867065 KM |
| MEAN ALTITUDE RATE | = | 0.0208872 | KM/SEC | TIME FROM PERIAPSIS | = | 40.7414632 SEC |
| HORIZONTAL VELOCITY | = | 1.9121783 | KM/SEC | TRUE ANOMALY | = | 2.4954504 DEG |
| SCALE FACTOR (HIGH) | = | 0.0118980 | M/KM | TILT DISTANCE (HIGH) | = | 34.1286163 MM |
| SCALE FACTOR (LOW) | = | 0.0015604 | M/KM | TILT DISTANCE (LOW) | = | 4.4758841 MM |
| IMAGE MOTION COMPENSATION (V/H) | = | 0.0372984 | RAD/SEC | SWING ANGLE | = | 354.0286064 DEG |
| EMISSION ANGLE | = | 3.2966937 | DEG | INCIDENCE ANGLE | = | 66.5460606 DEG |
| PHASE ANGLE | = | 65.8061829 | DEG | NORTH DEVIATION ANGLE | = | 339.0175972 DEG |
| TILT ANGLE | = | 3.2022773 | DEG | RESOLUTION CONSTANT | = | 1.1125399 MTR |
| TILT AZIMUTH | = | 194.9868221 | DEG | SUN AZIMUTH AT PRINCIPAL GND PT | = | 91.3125420 DEG |
| SUN ANGLE AT NADIR | = | 66.5237732 | DEG | SUN ARC AT NADIR | = | 2018.0248566 KM |
| LONGITUDE DISTANCE TO TARGET | = | 0.0949883 | DEG | LATITUDE DISTANCE TO TARGET | = | 3.1808933 DEG |
| LONGITUDE ARC LENGTH TO TARGET | = | 2.8815088 | KM | LATITUDE ARC LENGTH TO TARGET | = | 5.4873772 KM |
| FORWARD OVERLAP RATIO | = | 9.3265902 | PCT | SIDE OVERLAP RATIO | = | 0. PCT |
| TIME BETWEEN PHOTOS | = | 2.1996260 | SEC | ALPHA | = | 3.7005286 DEG. |

| | X | Y | Z | MAGNITUDE (KM) |
|---|---|---|---|---|
| DIRECTION COSINES TO TARGET | -0.69488506 | -0.71280511 | -0.09509800 | 51.57151175 |
| CAMERA AXIS | -0.72662866 | -0.68570883 | -0.04259335 | 51.26911926 |
| C1 | -0.79092132 | -0.60249624 | 0.10696618 | 51.64918518 |
| C2 | -0.69396341 | -0.68477652 | -0.22247677 | 52.72430420 |
| C3 | -0.63804778 | -0.74600096 | -0.19072915 | 52.69543457 |
| C4 | -0.73500568 | -0.66372067 | 0.13871379 | 51.62150574 |

| | X | Y | Z | X DOT | Y DOT | Z DOT |
|---|---|---|---|---|---|---|
| STATE VECTOR (1950.0) | -332.7825012 | -1616.5998840 | -690.9209671 | 1.7661460 | -0.0749613 | -0.7293641 |

LONG 43.2624 DEG
LATI -0.3161 DEG

(1)

42.04343 KM

LONG 42.7928 DEG
LATI -1.6201 DEG

(2)

LCNG 42.6658 DEG
LATI -0.4892 DEG

(1)

18.45926 KM

LCNG 42.4497 DEG
LATI -1.0580 DEG

(2)

LOW RESOLUTION

34.56479 KM

36.22752 KM

(4)

41.86830 KM

(3)

LONG 42.1975 DEG
LATI 0.0891 DEG

LONG 41.6784 DEG
LATI -1.1899 DEG

HIGH RESOLUTION

4.58456 KM

4.67998 KM

(4)

18.44923 KM

(3)

LCNG 42.5246 DEG
LATI -0.4353 DEG

LCNG 42.3057 DEG
LATI -1.0027 DEG

LOW RESOLUTION 29

| INDEX | LONGITUDE | LATITUDE |
|---|---|---|
| 1 | 43.2624407 | -0.3161105 |
| 2 | 43.2177448 | -0.4387312 |
| 3 | 43.1748614 | -0.5566707 |
| 4 | 43.1332603 | -0.6713555 |
| 5 | 43.0924726 | -0.7840622 |
| 6 | 43.0520606 | -0.8959851 |
| 7 | 43.0116062 | -1.0082819 |
| 8 | 42.9706893 | -1.1221266 |
| 9 | 42.9288673 | -1.2387624 |
| 10 | 42.8856583 | -1.3595542 |
| 11 | 42.8405185 | -1.4860622 |
| 12 | 42.7928066 | -1.6201319 |
| 13 | 42.6852484 | -1.5780639 |
| 14 | 42.5814576 | -1.5375780 |
| 15 | 42.4804826 | -1.4982942 |
| 16 | 42.3814683 | -1.4598709 |
| 17 | 42.2836242 | -1.4219975 |
| 18 | 42.1861916 | -1.3843794 |
| 19 | 42.0884337 | -1.3467297 |
| 20 | 41.9895954 | -1.3087624 |
| 21 | 41.8888931 | -1.2701778 |
| 22 | 41.7854791 | -1.2306609 |
| 23 | 41.6784167 | -1.1898616 |
| 24 | 41.7322021 | -1.0587886 |
| 25 | 41.7828646 | -0.9350187 |
| 26 | 41.8311577 | -0.8167617 |
| 27 | 41.8777156 | -0.7024995 |
| 28 | 41.9230876 | -0.5909027 |
| 29 | 41.9677758 | -0.4807565 |
| 30 | 42.0122471 | -0.3709117 |
| 31 | 42.0569639 | -0.2602336 |
| 32 | 42.1023941 | -0.1475440 |
| 33 | 42.1490421 | -0.0315871 |
| 34 | 42.1974630 | 0.0890503 |
| 35 | 42.2994838 | 0.0498646 |
| 36 | 42.3980951 | 0.0120613 |
| 37 | 42.4941850 | -0.0247048 |
| 38 | 42.5885520 | -0.0607409 |
| 39 | 42.6819420 | -0.0963381 |
| 40 | 42.7750678 | -0.1317680 |
| 41 | 42.8686371 | -0.1673004 |
| 42 | 42.9633689 | -0.2032058 |
| 43 | 43.0600181 | -0.2397670 |
| 44 | 43.1594057 | -0.2772903 |

HIGH RESOLUTION 29

| INDEX | LONGITUDE | LATITUDE |
|---|---|---|
| 1 | 42.6658063 | -0.4891850 |
| 2 | 42.6461997 | -0.5407606 |
| 3 | 42.6267147 | -0.5920237 |
| 4 | 42.6073074 | -0.6430888 |
| 5 | 42.5879354 | -0.6940693 |
| 6 | 42.5685554 | -0.7450754 |
| 7 | 42.5491271 | -0.7962173 |
| 8 | 42.5296049 | -0.8476111 |
| 9 | 42.5099483 | -0.8993677 |
| 10 | 42.4901094 | -0.9516076 |
| 11 | 42.4700432 | -1.0044536 |
| 12 | 42.4497013 | -1.0580339 |
| 13 | 42.4365892 | -1.0529889 |
| 14 | 42.4234867 | -1.0479482 |
| 15 | 42.4103918 | -1.0429109 |
| 16 | 42.3973026 | -1.0378771 |
| 17 | 42.3842173 | -1.0328458 |
| 18 | 42.3711333 | -1.0278162 |
| 19 | 42.3580499 | -1.0227867 |
| 20 | 42.3449655 | -1.0177579 |
| 21 | 42.3318772 | -1.0127283 |
| 22 | 42.3187823 | -1.0076971 |
| 23 | 42.3056822 | -1.0026641 |
| 24 | 42.3263149 | -0.9492289 |
| 25 | 42.3466625 | -0.8965255 |
| 26 | 42.3667750 | -0.8444223 |
| 27 | 42.3866997 | -0.7928005 |
| 28 | 42.4064817 | -0.7415400 |
| 29 | 42.4261642 | -0.6905270 |
| 30 | 42.4457936 | -0.6396481 |
| 31 | 42.4654102 | -0.5887930 |
| 32 | 42.4850583 | -0.5378509 |
| 33 | 42.5047808 | -0.4867099 |
| 34 | 42.5246215 | -0.4352555 |
| 35 | 42.5374622 | -0.4401639 |
| 36 | 42.5502968 | -0.4450679 |
| 37 | 42.5631270 | -0.4499694 |
| 38 | 42.5759540 | -0.4548710 |
| 39 | 42.5887794 | -0.4597699 |
| 40 | 42.6016054 | -0.4646680 |
| 41 | 42.6144333 | -0.4695678 |
| 42 | 42.6272655 | -0.4744693 |
| 43 | 42.6401038 | -0.4793717 |
| 44 | 42.6529498 | -0.4842766 |

**********
* PHOTO FRAME NUMBER 6 OF 8 *
**********

## FRAME 30

| | YEAR | MONTH | DAY | HOUR | MINUTE | SECOND |
|---|---|---|---|---|---|---|
| GMT | 67 | 2 | 15 | 13 | 32 | 14.999 |

| | | | | | |
|---|---|---|---|---|---|
| LONGITUDE OF NADIR POINT | = | 42.6433372 | DEG | LATITUDE OF NADIR POINT | = -0.7020282 DEG |
| LONG OF CAMERA AXIS INTERSECT | = | 42.6227818 | DEG | LATI OF CAMERA AXIS INTERSECT | = -0.7947864 DEG |
| SPACECRAFT RADIUS | = | 1789.3261108 | KM | SPACECRAFT ALTITUDE | = 51.2361145 KM |
| MEAN ALTITUDE RATE | = | 0.0220663 | KM/SEC | TIME FROM PERIAPSIS | = 43.3437040 SEC |
| HORIZONTAL VELOCITY | = | 1.9121254 | KM/SEC | TRUE ANOMALY | = 2.6364160 DEG |
| SCALE FACTOR (HIGH) | = | 0.0118863 | M/KM | TILT DISTANCE (HIGH) | = 34.3128176 MM |
| SCALE FACTOR (LOW) | = | 0.0015589 | M/KM | TILT DISTANCE (LOW) | = 4.5000416 MM |
| IMAGE MOTION COMPENSATION (V/H) | = | 0.0372613 | RAD/SEC | SWING ANGLE | = 351.5328827 DEG |
| EMISSION ANGLE | = | 3.3145430 | DEG | INCIDENCE ANGLE | = 66.4094133 DEG |
| PHASE ANGLE | = | 65.8061829 | DEG | NORTH DEVIATION ANGLE | = 339.0187149 DEG |
| TILT ANGLE | = | 3.2195246 | DEG | RESOLUTION CONSTANT | = 1.1136332 MTR |
| TILT AZIMUTH | = | 192.4939728 | DEG | SUN AZIMUTH AT PRINCIPAL GND PT | = 91.2896585 DEG |
| SUN ANGLE AT NADIR | = | 66.3909836 | DEG | SUN ARC AT NADIR | = 2013.9966278 KM |
| LONGITUDE DISTANCE TO TARGET | = | 0.2263374 | DEG | LATITUDE DISTANCE TO TARGET | = 0.1309718 DEG |
| LONGITUDE ARC LENGTH TO TARGET | = | 6.8660350 | KM | LATITUDE ARC LENGTH TO TARGET | = 3.9730816 KM |
| FORWARD OVERLAP RATIO | = | 5.2914614 | PCT | SIDE OVERLAP RATIO | = 0. PCT |
| TIME BETWEEN PHOTOS | = | 2.3000479 | SEC | ALPHA | = 0.5625063 DEG. |

| | X | Y | Z | MAGNITUDE (KM) |
|---|---|---|---|---|
| DIRECTION COSINES TO TARGET | -0.63789405 | -0.76741880 | -0.06449467 | 51.86431551 |
| CAMERA AXIS | -0.72663248 | -0.68570478 | -0.04259329 | 51.31950378 |
| C1 | -0.79092465 | -0.60249184 | 0.10696625 | 51.70588684 |
| C2 | -0.69396723 | -0.68477266 | -0.22247671 | 52.78218079 |
| C3 | -0.63805194 | -0.74599741 | -0.19072910 | 52.74108887 |
| C4 | -0.73500936 | -0.66371659 | 0.13871385 | 51.66645813 |

| | X | Y | Z | X DOT | Y DOT | Z DOT |
|---|---|---|---|---|---|---|
| STATE VECTOR (1950.0) | -328.7196083 | -1616.7686462 | -692.5969467 | 1.7667960 | -0.0717792 | -0.7280047 |

LONG 43.3991 DEG
LATI -0.3669 DEG

LONG 42.9286 DEG
LATI -1.6733 DEG

(1) • 42.12216 KM • (2)

LOW RESOLUTION

34.59985 KM 36.26420 KM

(4) • 41.87273 KM • (3)

LONG 42.3326 DEG
LATI 0.0377 DEG

LONG 41.8136 DEG
LATI -1.2413 DEG

LONG 42.8012 DEG
LATI -0.5404 DEG

LONG 42.5849 DEG
LATI -1.1099 DEG

(1) • 18.47953 KM • (2)

HIGH RESOLUTION

4.58915 KM 4.68466 KM

(4) • 18.46524 KM • (3)

LONG 42.6599 DEG
LATI -0.4865 DEG

LONG 42.4407 DEG
LATI -1.0544 DEG

LOW RESOLUTION 30

| INDEX | LONGITUDE | LATITUDE |
|---|---|---|
| 1 | 43.3990698 | -0.3668588 |
| 2 | 43.3542933 | -0.4897066 |
| 3 | 43.3113341 | -0.6078663 |
| 4 | 43.2696600 | -0.7227638 |
| 5 | 43.2288003 | -0.8356813 |
| 6 | 43.1883192 | -0.9478134 |
| 7 | 43.1477957 | -1.0603220 |
| 8 | 43.1068077 | -1.1743827 |
| 9 | 43.0649152 | -1.2912421 |
| 10 | 43.0216327 | -1.4122662 |
| 11 | 42.9764171 | -1.5390183 |
| 12 | 42.9286242 | -1.6733485 |
| 13 | 42.8208261 | -1.6310415 |
| 14 | 42.7168398 | -1.5903387 |
| 15 | 42.6157079 | -1.5508576 |
| 16 | 42.5165744 | -1.5122542 |
| 17 | 42.4186411 | -1.4742152 |
| 18 | 42.3211536 | -1.4364443 |
| 19 | 42.2233706 | -1.3986537 |
| 20 | 42.1245413 | -1.3605549 |
| 21 | 42.0238786 | -1.3218507 |
| 22 | 41.9205399 | -1.2822229 |
| 23 | 41.8135929 | -1.2413228 |
| 24 | 41.8673725 | -1.1102378 |
| 25 | 41.9180322 | -0.9864552 |
| 26 | 41.9663234 | -0.8681862 |
| 27 | 42.0128789 | -0.7539111 |
| 28 | 42.0582519 | -0.6423007 |
| 29 | 42.1029401 | -0.5321417 |
| 30 | 42.1474128 | -0.4222833 |
| 31 | 42.1921310 | -0.3115872 |
| 32 | 42.2375655 | -0.1988823 |
| 33 | 42.2842164 | -0.0829082 |
| 34 | 42.3326430 | 0.0377487 |
| 35 | 42.4346399 | -0.0013261 |
| 36 | 42.5332632 | -0.0390320 |
| 37 | 42.6293941 | -0.0757143 |
| 38 | 42.7238312 | -0.1116796 |
| 39 | 42.8173194 | -0.1472170 |
| 40 | 42.9105711 | -0.1825991 |
| 41 | 43.0042963 | -0.2180931 |
| 42 | 43.0992136 | -0.2539703 |
| 43 | 43.1960845 | -0.2905153 |
| 44 | 43.2957306 | -0.3280326 |

HIGH RESOLUTION 30

| INDEX | LONGITUDE | LATITUDE |
|---|---|---|
| 1 | 42.8012028 | -0.5403909 |
| 2 | 42.7815762 | -0.5920237 |
| 3 | 42.7620707 | -0.6433440 |
| 4 | 42.7426434 | -0.6944663 |
| 5 | 42.7232518 | -0.7455023 |
| 6 | 42.7038527 | -0.7965648 |
| 7 | 42.6844034 | -0.8477648 |
| 8 | 42.6648626 | -0.8992140 |
| 9 | 42.6451845 | -0.9510287 |
| 10 | 42.6253262 | -1.0033266 |
| 11 | 42.6052394 | -1.0562324 |
| 12 | 42.5848765 | -1.1098716 |
| 13 | 42.5717521 | -1.1048138 |
| 14 | 42.5586362 | -1.0997595 |
| 15 | 42.5455298 | -1.0947085 |
| 16 | 42.5324287 | -1.0896627 |
| 17 | 42.5193329 | -1.0846187 |
| 18 | 42.5062385 | -1.0795754 |
| 19 | 42.4931455 | -1.0745339 |
| 20 | 42.4800510 | -1.0694923 |
| 21 | 42.4669538 | -1.0644508 |
| 22 | 42.4538522 | -1.0594084 |
| 23 | 42.4407420 | -1.0543652 |
| 24 | 42.4613919 | -1.0008831 |
| 25 | 42.4817557 | -0.9481318 |
| 26 | 42.5018840 | -0.8959825 |
| 27 | 42.5218234 | -0.8443155 |
| 28 | 42.5416212 | -0.7930097 |
| 29 | 42.5613213 | -0.7419515 |
| 30 | 42.5809641 | -0.6910290 |
| 31 | 42.6005983 | -0.6401296 |
| 32 | 42.6202626 | -0.5891414 |
| 33 | 42.6400003 | -0.5379559 |
| 34 | 42.6598582 | -0.4864572 |
| 35 | 42.6727104 | -0.4913638 |
| 36 | 42.6855574 | -0.4962679 |
| 37 | 42.6984000 | -0.5011702 |
| 38 | 42.7112403 | -0.5060709 |
| 39 | 42.7240796 | -0.5109699 |
| 40 | 42.7369208 | -0.5158705 |
| 41 | 42.7497644 | -0.5207695 |
| 42 | 42.7626119 | -0.5256710 |
| 43 | 42.7754660 | -0.5305751 |
| 44 | 42.7883301 | -0.5354817 |

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* PHOTO FRAME NUMBER 7 OF 8 *
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FRAME 31

| | YEAR | MONTH | DAY | HOUR | MINUTE | SECOND |
|---|---|---|---|---|---|---|
| GMT | 67 | 2 | 15 | 13 | 32 | 17.299 |

| | | | | | |
|---|---|---|---|---|---|
| LONGITUDE OF NADIR POINT | = | 42.7746119 | DEG | LATITUDE OF NADIR POINT | = | -0.7519176 | DEG |
| LONG OF CAMERA AXIS INTERSECT | = | 42.7579212 | DEG | LATI OF CAMERA AXIS INTERSECT | = | -0.8462451 | DEG |
| SPACECRAFT RADIUS | = | 1789.3781891 | KM | SPACECRAFT ALTITUDE | = | 51.2881927 | KM |
| MEAN ALTITUDE RATE | = | 0.0232446 | KM/SEC | TIME FROM PERIAPSIS | = | 45.3448730 | SEC |
| HORIZONTAL VELOCITY | = | 1.9120697 | KM/SEC | TRUE ANOMALY | = | 2.7773076 | DEG |
| SCALE FACTOR (HIGH) | = | 0.0118740 | M/KM | TILT DISTANCE (HIGH) | = | 34.5607481 | MM |
| SCALE FACTOR (LOW) | = | 0.0015572 | M/KM | TILT DISTANCE (LOW) | = | 4.5325571 | MM |
| IMAGE MOTION COMPENSATION (V/H) | = | 0.0372220 | RAD/SEC | SWING ANGLE | = | 349.0703583 | DEG |
| EMISSION ANGLE | = | 3.3385407 | DEG | INCIDENCE ANGLE | = | 66.2728434 | DEG |
| PHASE ANGLE | = | 65.8061848 | DEG | NORTH DEVIATION ANGLE | = | 339.0200768 | DEG |
| TILT ANGLE | = | 3.2427382 | DEG | RESOLUTION CONSTANT | = | 1.1147911 | MTR |
| TILT AZIMUTH | = | 190.0333595 | DEG | SUN AZIMUTH AT PRINCIPAL GND PT | = | 91.2665033 | DEG |
| SUN ANGLE AT NADIR | = | 66.2582779 | DEG | SUN ARC AT NADIR | = | 2009.9709473 | KM |
| LONGITUDE DISTANCE TO TARGET | = | 0.3576121 | DEG | LATITUDE DISTANCE TO TARGET | = | 0.0810824 | DEG |
| LONGITUDE ARC LENGTH TO TARGET | = | 10.8483046 | KM | LATITUDE ARC LENGTH TO TARGET | = | 2.4596668 | KM |
| FORWARD OVERLAP RATIO | = | 5.4358181 | PCT | SIDE OVERLAP RATIO | = | 0. | PCT |
| TIME BETWEEN PHOTOS | = | 2.3000479 | SEC | ALPHA | = | 0.4245322 | DEG. |

| | X | Y | Z | MAGNITUDE (KM) |
|---|---|---|---|---|
| DIRECTION COSINES TO TARGET | -0.57749377 | -0.81568612 | -0.03401616 | 52.51510906 |
| CAMERA AXIS | -0.72663642 | -0.68570062 | -0.04259319 | 51.37286377 |
| C1 | -0.79092810 | -0.60248730 | 0.10696635 | 51.76560974 |
| C2 | -0.69397118 | -0.68476868 | -0.22247662 | 52.84315491 |
| C3 | -0.63805623 | -0.74599375 | -0.19072901 | 52.78977966 |
| C4 | -0.73501315 | -0.66371237 | 0.13871394 | 51.71443176 |

| | X | Y | Z | X DOT | Y DOT | Z DOT |
|---|---|---|---|---|---|---|
| STATE VECTOR (1950.0) | -324.6570129 | -1616.9300079 | -694.2690582 | 1.7674378 | -0.0685985 | -0.7266428 |

LONG 43.5357 DEG
LATI -0.4176 DEG

LONG 43.0644 DEG
LATI -1.7266 DEG

(1) * 42.20350 KM * (2)

LOW RESOLUTION

34.63726 KM 36.30334 KM

(4) * 41.87961 KM * (3)

LONG 42.4677 DEG
LATI -0.0135 DEG

LONG 41.9486 DEG
LATI -1.2928 DEG

LONG 42.9365 DEG
LATI -0.5916 DEG

LONG 42.7200 DEG
LATI -1.1617 DEG

(1) * 18.50088 KM * (2)

HIGH RESOLUTION

4.59407 KM 4.68965 KM

(4) * 18.48232 KM * (3)

LONG 42.7950 DEG
LATI -0.5376 DEG

LONG 42.5757 DEG
LATI -1.1061 DEG

LOW RESOLUTION 31

| INDEX | LONGITUDE | LATITUDE |
|---|---|---|
| 1 | 43.5356817 | -0.4175602 |
| 2 | 43.4908228 | -0.5406428 |
| 3 | 43.4477844 | -0.6590279 |
| 4 | 43.4060354 | -0.7741473 |
| 5 | 43.3651018 | -0.8872825 |
| 6 | 43.3245487 | -0.9996323 |
| 7 | 43.2839532 | -1.1123586 |
| 8 | 43.2428927 | -1.2266430 |
| 9 | 43.2009263 | -1.3437313 |
| 10 | 43.1575689 | -1.4649944 |
| 11 | 43.1122732 | -1.5920009 |
| 12 | 43.0643988 | -1.7266026 |
| 13 | 42.9563518 | -1.6840506 |
| 14 | 42.8521619 | -1.6431283 |
| 15 | 42.7508688 | -1.6034466 |
| 16 | 42.6516070 | -1.5646606 |
| 17 | 42.5535798 | -1.5264525 |
| 18 | 42.4560313 | -1.4885262 |
| 19 | 42.3582163 | -1.4505921 |
| 20 | 42.2593865 | -1.4123601 |
| 21 | 42.1587582 | -1.3735331 |
| 22 | 42.0554891 | -1.3337925 |
| 23 | 41.9486499 | -1.2927891 |
| 24 | 42.0024271 | -1.1616845 |
| 25 | 42.0530858 | -1.0378839 |
| 26 | 42.1013775 | -0.9195953 |
| 27 | 42.1479349 | -0.8053015 |
| 28 | 42.1933098 | -0.6936697 |
| 29 | 42.2380004 | -0.5834894 |
| 30 | 42.2824779 | -0.4736096 |
| 31 | 42.3271999 | -0.3628931 |
| 32 | 42.3726392 | -0.2501651 |
| 33 | 42.4192972 | -0.1341671 |
| 34 | 42.4677305 | -0.0134860 |
| 35 | 42.5697131 | -0.0524499 |
| 36 | 42.6683540 | -0.0900595 |
| 37 | 42.7645321 | -0.1266599 |
| 38 | 42.8590460 | -0.1625585 |
| 39 | 42.9526377 | -0.1980388 |
| 40 | 43.0460219 | -0.2333739 |
| 41 | 43.1399078 | -0.2688311 |
| 42 | 43.2350192 | -0.3046836 |
| 43 | 43.3321176 | -0.3412132 |
| 44 | 43.4320312 | -0.3787254 |

HIGH RESOLUTION 31

| INDEX | LONGITUDE | LATITUDE |
|---|---|---|
| 1 | 42.9365420 | -0.5915627 |
| 2 | 42.9168935 | -0.6432544 |
| 3 | 42.8973675 | -0.6946345 |
| 4 | 42.8779187 | -0.7458165 |
| 5 | 42.8585057 | -0.7969132 |
| 6 | 42.8390851 | -0.8480346 |
| 7 | 42.8196154 | -0.8992943 |
| 8 | 42.8000526 | -0.9508033 |
| 9 | 42.7803550 | -1.0026794 |
| 10 | 42.7604747 | -1.0550388 |
| 11 | 42.7403679 | -1.1080052 |
| 12 | 42.7199831 | -1.1617084 |
| 13 | 42.7068448 | -1.1566362 |
| 14 | 42.6937156 | -1.1515682 |
| 15 | 42.6805949 | -1.1465044 |
| 16 | 42.6674829 | -1.1414441 |
| 17 | 42.6543741 | -1.1363872 |
| 18 | 42.6412687 | -1.1313312 |
| 19 | 42.6281648 | -1.1262777 |
| 20 | 42.6150608 | -1.1212225 |
| 21 | 42.6019530 | -1.1161699 |
| 22 | 42.5888414 | -1.1111155 |
| 23 | 42.5757251 | -1.1060586 |
| 24 | 42.5963912 | -1.0525270 |
| 25 | 42.6167717 | -0.9997262 |
| 26 | 42.6369166 | -0.9475291 |
| 27 | 42.6568727 | -0.8958126 |
| 28 | 42.6766877 | -0.8444590 |
| 29 | 42.6964040 | -0.7933529 |
| 30 | 42.7160654 | -0.7423818 |
| 31 | 42.7357149 | -0.6914354 |
| 32 | 42.7553964 | -0.6404002 |
| 33 | 42.7751517 | -0.5891661 |
| 34 | 42.7950258 | -0.5376187 |
| 35 | 42.8078918 | -0.5425245 |
| 36 | 42.8207526 | -0.5474285 |
| 37 | 42.8336091 | -0.5523318 |
| 38 | 42.8464642 | -0.5572324 |
| 39 | 42.8593178 | -0.5621331 |
| 40 | 42.8721747 | -0.5670329 |
| 41 | 42.8850336 | -0.5719344 |
| 42 | 42.8978987 | -0.5768368 |
| 43 | 42.9107699 | -0.5817426 |
| 44 | 42.9236503 | -0.5866501 |

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* PHOTO FRAME NUMBER 8 OF 8 *
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## FRAME 32

| | YEAR | MONTH | DAY | HOUR | MINUTE | SECOND |
|---|---|---|---|---|---|---|
| GMT | 67 | 2 | 15 | 13 | 32 | 19.599 |

| | | | | | |
|---|---|---|---|---|---|
| LONGITUDE OF NADIR POINT | = | 42.9959482 | DEG | LATITUDE OF NADIR POINT | = | -0.8018232 | DEG |
| LONG OF CAMERA AXIS INTERSECT | = | 42.8931303 | DEG | LATI OF CAMERA AXIS INTERSECT | = | -0.8377276 | DEG |
| SPACECRAFT RADIUS | = | 1789.4330139 | KM | SPACECRAFT ALTITUDE | = | 51.3430176 | KM |
| MEAN ALTITUDE RATE | = | 0.0244233 | KM/SEC | TIME FROM PERIAPSIS | = | 47.6470871 | SEC |
| HORIZONTAL VELOCITY | = | 1.9120112 | KM/SEC | TRUE ANOMALY | = | 2.9182547 | DEG |
| SCALE FACTOR (HIGH) | = | 0.0118609 | M/KM | TILT DISTANCE (HIGH) | = | 34.8717818 | MM |
| SCALE FACTOR (LOW) | = | 0.0015555 | M/KM | TILT DISTANCE (LOW) | = | 4.5733484 | MM |
| IMAGE MOTION COMPENSATION (V/H) | = | 0.0371803 | RAD/SEC | SWING ANGLE | = | 346.6459846 | DEG |
| EMISSION ANGLE | = | 3.3686356 | DEG | INCIDENCE ANGLE | = | 66.1362333 | DEG |
| PHASE ANGLE | = | 65.8061848 | DEG | NORTH DEVIATION ANGLE | = | 339.0216827 | DEG |
| TILT ANGLE | = | 3.2718584 | DEG | RESOLUTION CONSTANT | = | 1.1160166 | MTR |
| TILT AZIMUTH | = | 187.6110802 | DEG | SUN AZIMUTH AT PRINCIPAL GND PT | = | 91.2430544 | DEG |
| SUN ANGLE AT NADIR | = | 66.1255360 | DEG | SUN ARC AT NADIR | = | 2035.9441681 | KM |
| LONGITUDE DISTANCE TO TARGET | = | 0.4889483 | DEG | LATITUDE DISTANCE TO TARGET | = | 0.0311768 | DEG |
| LONGITUDE ARC LENGTH TO TARGET | = | 14.8324404 | KM | LATITUDE ARC LENGTH TO TARGET | = | 0.9457600 | KM |
| FORWARD OVERLAP RATIO | = | 5.4933218 | PCT | SIDE OVERLAP RATIO | = | 0. | PCT |
| TIME BETWEEN PHOTOS | = | 2.3000479 | SEC | ALPHA | = | 0.2864867 | DEG. |

| | X | Y | Z | MAGNITUDE (KM) |
|---|---|---|---|---|
| DIRECTION COSINES TO TARGET | -0.51538813 | -0.85712671 | -0.00424525 | 53.51144505 |
| CAMERA AXIS | -0.72664028 | -0.68569653 | -0.04259310 | 51.42933655 |
| C1 | -0.79093149 | -0.60248283 | 0.10696644 | 51.82846069 |
| C2 | -0.69397506 | -0.68476478 | -0.22247653 | 52.90733337 |
| C3 | -0.63806046 | -0.74599016 | -0.19072893 | 52.84165955 |
| C4 | -0.73501687 | -0.66370822 | 0.13871404 | 51.76548767 |

| | X | Y | Z | X DOT | Y DOT | Z DOT |
|---|---|---|---|---|---|---|
| STATE VECTOR (1950.0) | -320.5911713 | -1617.0841217 | -695.9387741 | 1.7680717 | -0.0654162 | -0.7252771 |

LONG 43.6724 DEG
LATI -0.4683 DEG

LONG 43.2003 DEG
LATI -1.7799 DEG

(1) • 42.28753 KM • (2)

LOW RESOLUTION

34.67704 KM 36.34505 KM

(4) • 41.88893 KM • (3)

LONG 42.6029 DEG
LATI -0.0647 DEG

LONG 42.0837 DEG
LATI -1.3443 DEG

LONG 43.0729 DEG
LATI -0.6427 DEG

LONG 42.8552 DEG
LATI -1.2136 DEG

(1) • 18.52334 KM • (2)

HIGH RESOLUTION

4.59927 KM 4.69496 KM

(4) • 18.50051 KM • (3)

LONG 42.9303 DEG
LATI -0.5888 DEG

LONG 42.7138 DEG
LATI -1.1578 DEG

LOW RESOLUTION 32

| INDEX | LONGITUDE | LATITUDE |
|---|---|---|
| 1 | 43.6724143 | -0.4682573 |
| 2 | 43.6274714 | -0.5915840 |
| 3 | 43.5843515 | -0.7102039 |
| 4 | 43.5425248 | -0.8255504 |
| 5 | 43.5015159 | -0.9389111 |
| 6 | 43.4608874 | -1.0514854 |
| 7 | 43.4202170 | -1.1644379 |
| 8 | 43.3790836 | -1.2789529 |
| 9 | 43.3370404 | -1.3962776 |
| 10 | 43.2936053 | -1.5177892 |
| 11 | 43.2482295 | -1.6450562 |
| 12 | 43.2002683 | -1.7799370 |
| 13 | 43.0919642 | -1.7371382 |
| 14 | 42.9875646 | -1.6959923 |
| 15 | 42.8860998 | -1.6561074 |
| 16 | 42.7867041 | -1.6171343 |
| 17 | 42.6885772 | -1.5787564 |
| 18 | 42.5909600 | -1.5406721 |
| 19 | 42.4931083 | -1.5025912 |
| 20 | 42.3942723 | -1.4642243 |
| 21 | 42.2936697 | -1.4252718 |
| 22 | 42.1904621 | -1.3854159 |
| 23 | 42.0837235 | -1.3443076 |
| 24 | 42.1375027 | -1.2131756 |
| 25 | 42.1881623 | -1.0893477 |
| 26 | 42.2364583 | -0.9710318 |
| 27 | 42.2830181 | -0.8567115 |
| 28 | 42.3283978 | -0.7450541 |
| 29 | 42.3730950 | -0.6348464 |
| 30 | 42.4175787 | -0.5249393 |
| 31 | 42.4623075 | -0.4141938 |
| 32 | 42.5077548 | -0.3014367 |
| 33 | 42.5544224 | -0.1854055 |
| 34 | 42.6028662 | -0.0646947 |
| 35 | 42.7048392 | -0.1035482 |
| 36 | 42.8035045 | -0.1410647 |
| 37 | 42.8997369 | -0.1775866 |
| 38 | 42.9943318 | -0.2134186 |
| 39 | 43.0880351 | -0.2488443 |
| 40 | 43.1815586 | -0.2841350 |
| 41 | 43.2756124 | -0.3195589 |
| 42 | 43.3709245 | -0.3553858 |
| 43 | 43.4682579 | -0.3919017 |
| 44 | 43.5684447 | -0.4294131 |

HIGH RESOLUTION 32

| INDEX | LONGITUDE | LATITUDE |
|---|---|---|
| 1 | 43.0719614 | -0.6427421 |
| 2 | 43.0522895 | -0.6944970 |
| 3 | 43.0327411 | -0.7459403 |
| 4 | 43.0132694 | -0.7971847 |
| 5 | 42.9938345 | -0.8483445 |
| 6 | 42.9743919 | -0.8995282 |
| 7 | 42.9549007 | -0.9508511 |
| 8 | 42.9353166 | -1.0024242 |
| 9 | 42.9155955 | -1.0543626 |
| 10 | 42.8956947 | -1.1067869 |
| 11 | 42.8755646 | -1.1598190 |
| 12 | 42.8551569 | -1.2135888 |
| 13 | 42.8420029 | -1.2085021 |
| 14 | 42.8288603 | -1.2034196 |
| 15 | 42.8157258 | -1.1983422 |
| 16 | 42.8025999 | -1.1932673 |
| 17 | 42.7894783 | -1.1881976 |
| 18 | 42.7763610 | -1.1831279 |
| 19 | 42.7632461 | -1.1780616 |
| 20 | 42.7501302 | -1.1729945 |
| 21 | 42.7370129 | -1.1679282 |
| 22 | 42.7238922 | -1.1628619 |
| 23 | 42.7107649 | -1.1577939 |
| 24 | 42.7314501 | -1.1042076 |
| 25 | 42.7518477 | -1.0513539 |
| 26 | 42.7720118 | -0.9991055 |
| 27 | 42.7919860 | -0.9473378 |
| 28 | 42.8118172 | -0.8959321 |
| 29 | 42.8315516 | -0.8447766 |
| 30 | 42.8512316 | -0.7937542 |
| 31 | 42.8708987 | -0.7427557 |
| 32 | 42.8905978 | -0.6916702 |
| 33 | 42.9103723 | -0.6403849 |
| 34 | 42.9302645 | -0.5887854 |
| 35 | 42.9431443 | -0.5936920 |
| 36 | 42.9560189 | -0.5985969 |
| 37 | 42.9688902 | -0.6034993 |
| 38 | 42.9817600 | -0.6084016 |
| 39 | 42.9946313 | -0.6133023 |
| 40 | 43.0075030 | -0.6182038 |
| 41 | 43.0203800 | -0.6231070 |
| 42 | 43.0332618 | -0.6280111 |
| 43 | 43.0461516 | -0.6329178 |
| 44 | 43.0590501 | -0.6378278 |

**********
* PHOTO FRAME NUMBER 1 OF 4 *
**********

FRAME 33

| | YEAR | MONTH | DAY | HOUR | MINUTE | SECOND |
|---|---|---|---|---|---|---|
| GMT | 67 | 2 | 15 | 17 | 1 | 14.398 |

| | | | | | | |
|---|---|---|---|---|---|---|
| LONGITUDE OF NADIR POINT | = | 42.2509947 DEG | LATITUDE OF NADIR POINT | = | -1.3483749 DEG |
| LONG OF CAMERA AXIS INTERSECT | = | 42.4806805 DEG | LATI OF CAMERA AXIS INTERSECT | = | -0.7720120 DEG |
| SPACECRAFT RADIUS | = | 1789.7038574 KM | SPACECRAFT ALTITUDE | = | 51.6138611 KM |
| MEAN ALTITUDE RATE | = | 0.0355941 KM/SEC | TIME FROM PERIAPSIS | = | 69.4309864 SEC |
| HORIZONTAL VELOCITY | = | 1.9116206 KM/SEC | TRUE ANOMALY | = | 4.2530176 DEG |
| SCALE FACTOR (HIGH) | = | 0.0110841 M/KM | TILT DISTANCE (HIGH) | = | 221.9932442 MM |
| SCALE FACTOR (LOW) | = | 0.0014536 M/KM | TILT DISTANCE (LOW) | = | 29.1138680 MM |
| IMAGE MOTION COMPENSATION (V/H) | = | 0.0347387 RAD/SEC | SWING ANGLE | = | 181.0656109 DEG |
| EMISSION ANGLE | = | 20.6180570 DEG | INCIDENCE ANGLE | = | 64.7852793 DEG |
| PHASE ANGLE | = | 73.2902851 DEG | NORTH DEVIATION ANGLE | = | 338.0079117 DEG |
| TILT ANGLE | = | 19.9976280 DEG | RESOLUTION CONSTANT | = | 1.1942367 MTR |
| TILT AZIMUTH | = | 21.7265544 DEG | SUN AZIMUTH AT PRINCIPAL GND PT | = | 91.2929983 DEG |
| SUN ANGLE AT NADIR | = | 65.0032244 DEG | SUN ARC AT NADIR | = | 1971.8983917 KM |
| LONGITUDE DISTANCE TO TARGET | = | -0.4320054 DEG | LATITUDE DISTANCE TO TARGET | = | -0.4313749 DEG |
| LONGITUDE ARC LENGTH TO TARGET | = | -13.1050539 KM | LATITUDE ARC LENGTH TO TARGET | = | -13.0859282 KM |
| FORWARD OVERLAP RATIO | = | 0. PCT | SIDE OVERLAP RATIO | = | 0. PCT |
| TIME BETWEEN PHOTOS | = | 0. SEC | ALPHA | = | -9.9281280 DEG. |

| | X | Y | Z | MAGNITUDE (KM) |
|---|---|---|---|---|
| DIRECTION COSINES TO TARGET | -0.85293026 | -0.45249577 | 0.26030280 | 54.92793846 |
| CAMERA AXIS | -0.77496994 | -0.53293295 | 0.33971176 | 55.03395081 |
| C1 | -0.78185798 | -0.40711486 | 0.47218174 | 60.08982849 |
| C2 | -0.79814065 | -0.57958912 | 0.16446264 | 52.47366333 |
| C3 | -0.74217779 | -0.64093725 | 0.19588660 | 52.44264221 |
| C4 | -0.72589512 | -0.46846300 | 0.50360569 | 60.04896545 |

| | X | Y | Z | X DOT | Y DOT | Z DOT |
|---|---|---|---|---|---|---|
| STATE VECTOR (1950.0) | -281.5991936 | -1616.9461212 | -713.6014862 | 1.7734234 | -0.0332551 | -0.7137398 |

LONG 43.5109 DEG
LATI -0.1500 DEG

LONG 42.7476 DEG
LATI -1.6039 DEG

(1) • 49.81180 KM • (2)

LOW RESOLUTION

44.97046 KM 32.92786 KM

(4) • 49.52252 KM • (3)

LONG 42.1211 DEG
LATI 0.3660 DEG

LONG 41.7321 DEG
LATI -1.2195 DEG

LONG 42.6954 DEG
LATI -0.4530 DEG

LONG 42.4372 DEG
LATI -1.1039 DEG

(1) • 21.24177 KM • (2)

HIGH RESOLUTION

5.33345 KM 4.65764 KM

(4) • 21.22648 KM • (3)

LONG 42.5307 DEG
LATI -0.3914 DEG

LONG 42.2935 DEG
LATI -1.0497 DEG

LOW RESOLUTION 33

| INDEX | LONGITUDE | LATITUDE |
|---|---|---|
| 1 | 43.5109215 | -0.1499696 |
| 2 | 43.4103975 | -0.3395475 |
| 3 | 43.3213973 | -0.5078707 |
| 4 | 43.2412148 | -0.6599038 |
| 5 | 43.1678452 | -0.7993370 |
| 6 | 43.0997643 | -0.9289954 |
| 7 | 43.0357676 | -1.0511114 |
| 8 | 42.9748831 | -1.1675064 |
| 9 | 42.9162946 | -1.2797085 |
| 10 | 42.8592954 | -1.3890513 |
| 11 | 42.8032537 | -1.4967394 |
| 12 | 42.7475739 | -1.6039043 |
| 13 | 42.6494617 | -1.5667549 |
| 14 | 42.5547857 | -1.5309083 |
| 15 | 42.4626870 | -1.4960394 |
| 16 | 42.3723898 | -1.4618543 |
| 17 | 42.2831779 | -1.4280815 |
| 18 | 42.1943665 | -1.3944633 |
| 19 | 42.1052866 | -1.3607444 |
| 20 | 42.0152612 | -1.3266712 |
| 21 | 41.9235787 | -1.2919730 |
| 22 | 41.8294806 | -1.2563629 |
| 23 | 41.7321239 | -1.2195234 |
| 24 | 41.7612820 | -1.1028706 |
| 25 | 41.7905030 | -0.9856134 |
| 26 | 41.8200936 | -0.8665179 |
| 27 | 41.8503737 | -0.7442703 |
| 28 | 41.8816967 | -0.6174166 |
| 29 | 41.9144607 | -0.4842817 |
| 30 | 41.9491396 | -0.3428781 |
| 31 | 41.9863052 | -0.1907621 |
| 32 | 42.0266814 | -0.0248363 |
| 33 | 42.0712051 | 0.1589428 |
| 34 | 42.1211233 | 0.3660153 |
| 35 | 42.2538805 | 0.3150399 |
| 36 | 42.3821869 | 0.2661127 |
| 37 | 42.5072250 | 0.2187547 |
| 38 | 42.6300645 | 0.1725366 |
| 39 | 42.7516990 | 0.1270731 |
| 40 | 42.8730845 | 0.0820007 |
| 41 | 42.9951673 | 0.0369693 |
| 42 | 43.1189175 | -0.0083730 |
| 43 | 43.2453613 | -0.0543828 |
| 44 | 43.3756108 | -0.1014420 |

HIGH RESOLUTION 33

| INDEX | LONGITUDE | LATITUDE |
|---|---|---|
| 1 | 42.6954298 | -0.4529722 |
| 2 | 42.6683865 | -0.5210948 |
| 3 | 42.6423278 | -0.5867517 |
| 4 | 42.6171441 | -0.6502127 |
| 5 | 42.5927391 | -0.7117202 |
| 6 | 42.5690241 | -0.7714955 |
| 7 | 42.5459218 | -0.8297390 |
| 8 | 42.5233579 | -0.8866311 |
| 9 | 42.5012641 | -0.9423398 |
| 10 | 42.4795818 | -0.9970198 |
| 11 | 42.4582524 | -1.0508186 |
| 12 | 42.4372196 | -1.1038704 |
| 13 | 42.4241352 | -1.0989415 |
| 14 | 42.4110599 | -1.0940161 |
| 15 | 42.3979931 | -1.0890924 |
| 16 | 42.3849316 | -1.0841704 |
| 17 | 42.3718758 | -1.0792493 |
| 18 | 42.3588223 | -1.0743290 |
| 19 | 42.3457689 | -1.0694078 |
| 20 | 42.3327150 | -1.0644858 |
| 21 | 42.3196583 | -1.0595621 |
| 22 | 42.3065958 | -1.0546341 |
| 23 | 42.2935276 | -1.0497044 |
| 24 | 42.3128762 | -0.9960542 |
| 25 | 42.3324938 | -0.9416491 |
| 26 | 42.3524308 | -0.8863494 |
| 27 | 42.3727398 | -0.8300097 |
| 28 | 42.3934770 | -0.7724722 |
| 29 | 42.4147034 | -0.7135678 |
| 30 | 42.4364862 | -0.6531112 |
| 31 | 42.4588962 | -0.5909010 |
| 32 | 42.4820151 | -0.5267152 |
| 33 | 42.5059309 | -0.4603078 |
| 34 | 42.5307412 | -0.3914031 |
| 35 | 42.5457149 | -0.3970150 |
| 36 | 42.5606818 | -0.4026226 |
| 37 | 42.5756426 | -0.4082250 |
| 38 | 42.5906024 | -0.4138224 |
| 39 | 42.6055617 | -0.4194189 |
| 40 | 42.6205225 | -0.4250119 |
| 41 | 42.6354876 | -0.4306033 |
| 42 | 42.6504588 | -0.4361955 |
| 43 | 42.6654382 | -0.4417860 |
| 44 | 42.6804271 | -0.4473782 |

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* PHOTO FRAME NUMBER 2 OF 4 *
**********

## FRAME 34

| | YEAR | MONTH | DAY | HOUR | MINUTE | SECOND |
|---|---|---|---|---|---|---|
| GMT | 67 | 2 | 15 | 17 | 1 | 16.798 |

| | | | | | |
|---|---|---|---|---|---|
| LONGITUDE OF NADIR POINT | = | 42.3879671 | DEG | LATITUDE OF NADIR POINT | = -1.4005251 DEG |
| LONG OF CAMERA AXIS INTERSECT | = | 42.6221079 | DEG | LATI OF CAMERA AXIS INTERSECT | = -0.8247197 DEG |
| SPACECRAFT RADIUS | = | 1789.7907562 | KM | SPACECRAFT ALTITUDE | = 51.7007599 KM |
| MEAN ALTITUDE RATE | = | 0.0368212 | KM/SEC | TIME FROM PERIAPSIS | = 71.8316622 SEC |
| HORIZONTAL VELOCITY | = | 1.9115277 | KM/SEC | TRUE ANOMALY | = 4.3999282 DEG |
| SCALE FACTOR (HIGH) | = | 0.0110652 | M/KM | TILT DISTANCE (HIGH) | = 222.0280666 MM |
| SCALE FACTOR (LOW) | = | 0.0014512 | M/KM | TILT DISTANCE (LOW) | = 29.1184349 MM |
| IMAGE MOTION COMPENSATION (V/H) | = | 0.0346790 | RAD/SEC | SWING ANGLE | = 181.4949112 DEG |
| EMISSION ANGLE | = | 20.6220927 | DEG | INCIDENCE ANGLE | = 64.6423864 DEG |
| PHASE ANGLE | = | 73.2902851 | DEG | NORTH DEVIATION ANGLE | = 338.0177422 DEG |
| TILT ANGLE | = | 20.0005159 | DEG | RESOLUTION CONSTANT | = 1.1962741 MTR |
| TILT AZIMUTH | = | 22.1266532 | DEG | SUN AZIMUTH AT PRINCIPAL GND PT | = 91.2676258 DEG |
| SUN ANGLE AT NADIR | = | 64.8650522 | DEG | SUN ARC AT NADIR | = 1967.7068787 KM |
| LONGITUDE DISTANCE TO TARGET | = | -0.2950330 | DEG | LATITUDE DISTANCE TO TARGET | = -0.4835251 DEG |
| LONGITUDE ARC LENGTH TO TARGET | = | -8.9499414 | KM | LATITUDE ARC LENGTH TO TARGET | = -14.6679251 KM |
| FORWARD OVERLAP RATIO | = | 7.9954028 | PCT | SIDE OVERLAP RATIO | = 0. PCT |
| TIME BETWEEN PHOTOS | = | 2.3998260 | SEC | ALPHA | = -10.0686163 DEG. |

| | X | Y | Z | MAGNITUDE (KM) |
|---|---|---|---|---|
| DIRECTION COSINES TO TARGET | -0.80652541 | -0.51409063 | 0.29193765 | 54.56147814 |
| CAMERA AXIS | -0.77497306 | -0.53292835 | 0.33971184 | 55.12783613 |
| C1 | -0.78186034 | -0.40711021 | 0.47218182 | 60.20089722 |
| C2 | -0.79814407 | -0.57958438 | 0.16446272 | 52.56933594 |
| C3 | -0.74218158 | -0.64093286 | 0.19588668 | 52.52575684 |
| C4 | -0.72589785 | -0.46845869 | 0.50360577 | 60.14344788 |

| | X | Y | Z | X DOT | Y DOT | Z DOT |
|---|---|---|---|---|---|---|
| STATE VECTOR (1950.0) | -277.3422852 | -1617.0219421 | -715.3126984 | 1.7739961 | -0.0299358 | -0.7122753 |

LONG 43.6556 DEG
LATI -0.2001 DEG

LONG 42.8899 DEG
LATI -1.6582 DEG

• 49.95672 KM •
(1) (2)

LOW RESOLUTION

45.05034 KM 32.98489 KM

(4) (3)
• 49.55012 KM •

LONG 42.2621 DEG
LATI 0.3132 DEG

LONG 41.8727 DEG
LATI -1.2731 DEG

LONG 42.8373 DEG
LATI -0.5050 DEG

LONG 42.5786 DEG
LATI -1.1571 DEG

• 21.28127 KM •
(1) (2)

HIGH RESOLUTION

5.34273 KM 4.66568 KM

(4) (3)
• 21.25977 KM •

LONG 42.6722 DEG
LATI -0.4436 DEG

LONG 42.4346 DEG
LATI -1.1029 DEG

LOW RESOLUTION 34

| INDEX | LONGITUDE | LATITUDE |
|---|---|---|
| 1 | 43.6556363 | -0.2001280 |
| 2 | 43.5547605 | -0.3903129 |
| 3 | 43.4654608 | -0.5591560 |
| 4 | 43.3850164 | -0.7116459 |
| 5 | 43.3114157 | -0.8514872 |
| 6 | 43.2431245 | -0.9815152 |
| 7 | 43.1789370 | -1.1039737 |
| 8 | 43.1178741 | -1.2206871 |
| 9 | 43.0591187 | -1.3331914 |
| 10 | 43.0019603 | -1.4428236 |
| 11 | 42.9457650 | -1.5507910 |
| 12 | 42.8899369 | -1.6582307 |
| 13 | 42.7915006 | -1.6209558 |
| 14 | 42.6965437 | -1.5850009 |
| 15 | 42.6042008 | -1.5500354 |
| 16 | 42.5136924 | -1.5157675 |
| 17 | 42.4242978 | -1.4819231 |
| 18 | 42.3353333 | -1.4482434 |
| 19 | 42.2461262 | -1.4144749 |
| 20 | 42.1559978 | -1.3803582 |
| 21 | 42.0642414 | -1.3456266 |
| 22 | 41.9700942 | -1.3099944 |
| 23 | 41.8727183 | -1.2731438 |
| 24 | 41.9019070 | -1.1563945 |
| 25 | 41.9311600 | -1.0390451 |
| 26 | 41.9607801 | -0.9198625 |
| 27 | 41.9910898 | -0.7975304 |
| 28 | 42.0224423 | -0.6705948 |
| 29 | 42.0552373 | -0.5373822 |
| 30 | 42.0899453 | -0.3959025 |
| 31 | 42.1271448 | -0.2437140 |
| 32 | 42.1675544 | -0.0777190 |
| 33 | 42.2121129 | 0.1061215 |
| 34 | 42.2620678 | 0.3132470 |
| 35 | 42.3948989 | 0.2626225 |
| 36 | 42.5233340 | 0.2140146 |
| 37 | 42.6485524 | 0.1669452 |
| 38 | 42.7716203 | 0.1209934 |
| 39 | 42.8935318 | 0.0757741 |
| 40 | 43.0152445 | 0.0309288 |
| 41 | 43.1377082 | -0.0138933 |
| 42 | 43.2618961 | -0.0590393 |
| 43 | 43.3888397 | -0.1048665 |
| 44 | 43.5196662 | -0.1517566 |

HIGH RESOLUTION 34

| INDEX | LONGITUDE | LATITUDE |
|---|---|---|
| 1 | 42.8372803 | -0.5049986 |
| 2 | 42.8101878 | -0.5732509 |
| 3 | 42.7840805 | -0.6390316 |
| 4 | 42.7588511 | -0.7026122 |
| 5 | 42.7344017 | -0.7642367 |
| 6 | 42.7106452 | -0.8241238 |
| 7 | 42.6875010 | -0.8824749 |
| 8 | 42.6648960 | -0.9394729 |
| 9 | 42.6427650 | -0.9952849 |
| 10 | 42.6210446 | -1.0500681 |
| 11 | 42.5996766 | -1.1039660 |
| 12 | 42.5786085 | -1.1571160 |
| 13 | 42.5654945 | -1.1521846 |
| 14 | 42.5523920 | -1.1472557 |
| 15 | 42.5392981 | -1.1423295 |
| 16 | 42.5262103 | -1.1374066 |
| 17 | 42.5131292 | -1.1324838 |
| 18 | 42.5000496 | -1.1275618 |
| 19 | 42.4869719 | -1.1226380 |
| 20 | 42.4738936 | -1.1177152 |
| 21 | 42.4608140 | -1.1127898 |
| 22 | 42.4477282 | -1.1078618 |
| 23 | 42.4346375 | -1.1029312 |
| 24 | 42.4540148 | -1.0491956 |
| 25 | 42.4736609 | -0.9947035 |
| 26 | 42.4936271 | -0.9393158 |
| 27 | 42.5139661 | -0.8828873 |
| 28 | 42.5347352 | -0.8252584 |
| 29 | 42.5559926 | -0.7662610 |
| 30 | 42.5778079 | -0.7057096 |
| 31 | 42.6002517 | -0.6434012 |
| 32 | 42.6234059 | -0.5791147 |
| 33 | 42.6473575 | -0.5126031 |
| 34 | 42.6722054 | -0.4435900 |
| 35 | 42.6872101 | -0.4491857 |
| 36 | 42.7022090 | -0.4547779 |
| 37 | 42.7172031 | -0.4603650 |
| 38 | 42.7321968 | -0.4659487 |
| 39 | 42.7471900 | -0.4715289 |
| 40 | 42.7621861 | -0.4771075 |
| 41 | 42.7771873 | -0.4826852 |
| 42 | 42.7921948 | -0.4882629 |
| 43 | 42.8072114 | -0.4938397 |
| 44 | 42.8222384 | -0.4994192 |

**********
* PHOTO FRAME NUMBER 3 OF 4 *
**********

## FRAME 35

| | YEAR | MONTH | DAY | HOUR | MINUTE | SECOND |
|---|---|---|---|---|---|---|
| GMT | 67 | 2 | 15 | 17 | 1 | 19.098 |

| | | | | | |
|---|---|---|---|---|---|
| LONGITUDE OF NADIR POINT | = | 42.5192289 | DEG | LATITUDE OF NADIR POINT | = -1.4504905 DEG |
| LONG OF CAMERA AXIS INTERSECT | = | 42.7576618 | DEG | LATI OF CAMERA AXIS INTERSECT | = -0.8751860 DEG |
| SPACECRAFT RADIUS | = | 1789.8768005 | KM | SPACECRAFT ALTITUDE | = 51.7868042 KM |
| MEAN ALTITUDE RATE | = | 0.0379969 | KM/SEC | TIME FROM PERIAPSIS | = 74.1322947 SEC |
| HORIZONTAL VELOCITY | = | 1.9114357 | KM/SEC | TRUE ANOMALY | = 4.5407040 DEG |
| SCALE FACTOR (HIGH) | = | 0.0110465 | M/KM | TILT DISTANCE (HIGH) | = 222.0730743 MM |
| SCALE FACTOR (LOW) | = | 0.0014487 | M/KM | TILT DISTANCE (LOW) | = 29.1243377 MM |
| IMAGE MOTION COMPENSATION (V/H) | = | 0.0346198 | RAD/SEC | SWING ANGLE | = 181.9060974 DEG |
| EMISSION ANGLE | = | 20.6269863 | DEG | INCIDENCE ANGLE | = 64.5054512 DEG |
| PHASE ANGLE | = | 73.2902861 | DEG | NORTH DEVIATION ANGLE | = 336.0274086 DEG |
| TILT ANGLE | = | 20.0042489 | DEG | RESOLUTION CONSTANT | = 1.1982982 MTR |
| TILT AZIMUTH | = | 22.5097895 | DEG | SUN AZIMUTH AT PRINCIPAL GND PT | = 91.2430382 DEG |
| SUN ANGLE AT NADIR | = | 64.7326698 | DEG | SUN ARC AT NADIR | = 1963.6910248 KM |
| LONGITUDE DISTANCE TO TARGET | = | -0.1637712 | DEG | LATITUDE DISTANCE TO TARGET | = -0.5334905 DEG |
| LONGITUDE ARC LENGTH TO TARGET | = | -4.9680623 | KM | LATITUDE ARC LENGTH TO TARGET | = -16.1836450 KM |
| FORWARD OVERLAP RATIO | = | 11.9750444 | PCT | SIDE OVERLAP RATIO | = 0. PCT |
| TIME BETWEEN PHOTOS | = | 2.3000479 | SEC | ALPHA | = -10.2031641 DEG. |

| | X | Y | Z | MAGNITUDE (KM) |
|---|---|---|---|---|
| DIRECTION COSINES TO TARGET | -0.75644869 | -0.57010341 | 0.32057365 | 54.56176758 |
| CAMERA AXIS | -0.77497602 | -0.53292398 | 0.33971193 | 55.22111511 |
| C1 | -0.78186258 | -0.40710581 | 0.47218191 | 60.31097412 |
| C2 | -0.79814732 | -0.57957990 | 0.16446282 | 52.66419983 |
| C3 | -0.74218516 | -0.64092868 | 0.19588677 | 52.60852051 |
| C4 | -0.72590043 | -0.46845460 | 0.50360585 | 60.23759460 |

| | X | Y | Z | X DOT | Y DOT | Z DOT |
|---|---|---|---|---|---|---|
| STATE VECTOR (1950.0) | -273.2614708 | -1617.0871429 | -716.9493179 | 1.7745367 | -0.0267551 | -0.7138687 |

LONG 43.7944 DEG
LATI -0.2481 DEG

LONG 43.0264 DEG
LATI -1.7103 DEG

* 50.09898 KM *
(1) (2)

LOW RESOLUTION

45.13032 KM 33.04178 KM

(4) (3)
* 49.57952 KM *

LONG 42.3971 DEG
LATI 0.2628 DEG

LONG 42.0074 DEG
LATI -1.3245 DEG

LONG 42.9733 DEG
LATI -0.5548 DEG

LONG 42.7141 DEG
LATI -1.2081 DEG

* 21.32042 KM *
(1) (2)

HIGH RESOLUTION

5.35200 KM 4.67369 KM

(4) (3)
* 21.29295 KM *

LONG 42.8078 DEG
LATI -0.4935 DEG

LONG 42.5699 DEG
LATI -1.1539 DEG

LOW RESOLUTION 35

| INDEX | LONGITUDE | LATITUDE |
|---|---|---|
| 1 | 43.7944202 | -0.2481075 |
| 2 | 43.6931982 | -0.4388857 |
| 3 | 43.6036043 | -0.6082394 |
| 4 | 43.5229039 | -0.7611776 |
| 5 | 43.4490771 | -0.9014185 |
| 6 | 43.3805809 | -1.0318110 |
| 7 | 43.3162045 | -1.1546050 |
| 8 | 43.2549667 | -1.2716326 |
| 9 | 43.1960478 | -1.3844332 |
| 10 | 43.1387343 | -1.4943506 |
| 11 | 43.0823879 | -1.6025929 |
| 12 | 43.0264130 | -1.7103024 |
| 13 | 42.9276586 | -1.6729045 |
| 14 | 42.8324256 | -1.6368411 |
| 15 | 42.7398419 | -1.6017835 |
| 16 | 42.6491241 | -1.5674336 |
| 17 | 42.5595493 | -1.5335192 |
| 18 | 42.4704309 | -1.4997780 |
| 19 | 42.3810959 | -1.4659566 |
| 20 | 42.2908640 | -1.4317989 |
| 21 | 42.1990280 | -1.3970349 |
| 22 | 42.1048288 | -1.3613788 |
| 23 | 42.0074301 | -1.3245145 |
| 24 | 42.0366502 | -1.2076662 |
| 25 | 42.0659323 | -1.0902220 |
| 26 | 42.0955830 | -0.9709472 |
| 27 | 42.1259232 | -0.8485272 |
| 28 | 42.1573048 | -0.7215070 |
| 29 | 42.1901298 | -0.5882108 |
| 30 | 42.2248697 | -0.4466500 |
| 31 | 42.2621007 | -0.2943829 |
| 32 | 42.3025451 | -0.1283136 |
| 33 | 42.3471389 | 0.0555977 |
| 34 | 42.3971334 | 0.2627873 |
| 35 | 42.5300441 | 0.2124966 |
| 36 | 42.6586113 | 0.1641901 |
| 37 | 42.7840104 | 0.1173973 |
| 38 | 42.9073057 | 0.0716973 |
| 39 | 43.0294909 | 0.0267120 |
| 40 | 43.1515260 | -0.0179207 |
| 41 | 43.2743616 | -0.0625415 |
| 42 | 43.3989787 | -0.1075012 |
| 43 | 43.5264149 | -0.1531533 |
| 44 | 43.6578035 | -0.1998838 |

HIGH RESOLUTION 35

| INDEX | LONGITUDE | LATITUDE |
|---|---|---|
| 1 | 42.9732552 | -0.5547958 |
| 2 | 42.9461131 | -0.6231762 |
| 3 | 42.9199595 | -0.6890790 |
| 4 | 42.8946853 | -0.7527782 |
| 5 | 42.8701916 | -0.8145163 |
| 6 | 42.8463917 | -0.8745152 |
| 7 | 42.8232069 | -0.9329748 |
| 8 | 42.8005619 | -0.9900777 |
| 9 | 42.7783928 | -1.0459922 |
| 10 | 42.7566342 | -1.1008762 |
| 11 | 42.7352304 | -1.1548731 |
| 12 | 42.7141252 | -1.2081204 |
| 13 | 42.7009835 | -1.2031865 |
| 14 | 42.6878543 | -1.1982551 |
| 15 | 42.6747332 | -1.1933262 |
| 16 | 42.6616197 | -1.1884008 |
| 17 | 42.6485114 | -1.1834745 |
| 18 | 42.6354079 | -1.1785508 |
| 19 | 42.6223049 | -1.1736263 |
| 20 | 42.6092029 | -1.1687008 |
| 21 | 42.5960994 | -1.1637746 |
| 22 | 42.5829911 | -1.1588466 |
| 23 | 42.5698781 | -1.1539152 |
| 24 | 42.5892839 | -1.1000933 |
| 25 | 42.6089587 | -1.0455150 |
| 26 | 42.6289535 | -0.9900410 |
| 27 | 42.6493230 | -0.9335221 |
| 28 | 42.6701207 | -0.8758036 |
| 29 | 42.6914110 | -0.8167130 |
| 30 | 42.7132583 | -0.7560669 |
| 31 | 42.7357359 | -0.6936603 |
| 32 | 42.7589245 | -0.6292730 |
| 33 | 42.7829123 | -0.5626573 |
| 34 | 42.8077974 | -0.4935358 |
| 35 | 42.8228340 | -0.4991178 |
| 36 | 42.8378639 | -0.5046938 |
| 37 | 42.8528910 | -0.5102681 |
| 38 | 42.8679180 | -0.5158364 |
| 39 | 42.8829455 | -0.5214030 |
| 40 | 42.8979769 | -0.5269679 |
| 41 | 42.9130135 | -0.5325328 |
| 42 | 42.9280577 | -0.5380968 |
| 43 | 42.9431100 | -0.5436608 |
| 44 | 42.9581761 | -0.5492275 |

**********
* PHOTO FRAME NUMBER 4 OF 4 *
**********

## FRAME 36

| | YEAR | MONTH | DAY | HOUR | MINUTE | SECOND |
|---|---|---|---|---|---|---|
| GMT | 67 | 2 | 15 | 17 | 1 | 21.398 |

| | | | | | |
|---|---|---|---|---|---|
| LONGITUDE OF NADIR POINT | = | 42.6505361 | DEG | LATITUDE OF NADIR POINT | = -1.5004662 DEG |
| LONG OF CAMERA AXIS INTERSECT | = | 42.8932910 | DEG | LATI OF CAMERA AXIS INTERSECT | = -2.9256366 DEG |
| SPACECRAFT RADIUS | = | 1789.9655762 | KM | SPACECRAFT ALTITUDE | = 91.8755798 KM |
| MEAN ALTITUDE RATE | = | 0.0391727 | KM/SEC | TIME FROM PERIAPSIS | = 76.4339581 SEC |
| HORIZONTAL VELOCITY | = | 1.9113407 | KM/SEC | TRUE ANOMALY | = 4.6815287 DEG |
| SCALE FACTOR (HIGH) | = | 0.0110272 | M/KM | TILT DISTANCE (HIGH) | = 222.1295795 MM |
| SCALE FACTOR (LOW) | = | 0.0014462 | M/KM | TILT DISTANCE (LOW) | = 29.1317482 MM |
| IMAGE MOTION COMPENSATION (V/H) | = | 0.0345585 | RAD/SEC | SWING ANGLE | = 182.3173161 DEG |
| EMISSION ANGLE | = | 20.6329038 | DEG | INCIDENCE ANGLE | = 64.3684626 DEG |
| PHASE ANGLE | = | 73.2902861 | DEG | NORTH DEVIATION ANGLE | = 338.0373154 DEG |
| TILT ANGLE | = | 20.0089352 | DEG | RESOLUTION CONSTANT | = 1.2003935 MTR |
| TILT AZIMUTH | = | 22.8927758 | DEG | SUN AZIMUTH AT PRINCIPAL GND PT | = 91.2181730 DEG |
| SUN ANGLE AT NADIR | = | 64.6002645 | DEG | SUN ARC AT NADIR | = 1959.6744385 KM |
| LONGITUDE DISTANCE TO TARGET | = | -0.0324640 | DEG | LATITUDE DISTANCE TO TARGET | = -0.5834662 DEG |
| LONGITUDE ARC LENGTH TO TARGET | = | -0.9848090 | KM | LATITUDE ARC LENGTH TO TARGET | = -17.6996756 KM |
| FORWARD OVERLAP RATIO | = | 12.0912311 | PCT | SIDE OVERLAP RATIO | = 0. PCT |
| TIME BETWEEN PHOTOS | = | 2.3000479 | SEC | ALPHA | = -10.3376882 DEG. |

| | X | Y | Z | MAGNITUDE (KM) |
|---|---|---|---|---|
| DIRECTION COSINES TO TARGET | -0.70181560 | -0.62211368 | 0.34702944 | 54.90619898 |
| CAMERA AXIS | -0.77497901 | -0.53291959 | 0.33971200 | 55.31767273 |
| C1 | -0.78186485 | -0.40710137 | 0.47218198 | 60.42466736 |
| C2 | -0.79815059 | -0.57957536 | 0.16446289 | 52.76222229 |
| C3 | -0.74218878 | -0.64092447 | 0.19588684 | 52.69439697 |
| C4 | -0.72590304 | -0.46845048 | 0.50360592 | 60.33528137 |

| | X | Y | Z | X DOT | Y DOT | Z DOT |
|---|---|---|---|---|---|---|
| STATE VECTOR (1950.0) | -269.1776466 | -1617.1450348 | -718.5834045 | 1.7750695 | -0.0235734 | -0.7094585 |

LONG 43.9334 DEG LONG 43.1630 DEG
LATI -0.2960 DEG LATI -1.7624 DEG

(1) • 50.24465 KM • (2)

LOW RESOLUTION

45.21371 KM 33.10089 KM

(4) • 49.61181 KM • (3)

LONG 42.5322 DEG LONG 42.1422 DEG
LATI 0.2124 DEG LATI -1.3759 DEG

LONG 43.1393 DEG LONG 42.8497 DEG
LATI -0.6046 DEG LATI -1.2591 DEG

(1) • 21.36084 KM • (2)

HIGH RESOLUTION

5.36162 KM 4.68201 KM

(4) • 21.32738 KM • (3)

LONG 42.9435 DEG LONG 42.7052 DEG
LATI -0.5434 DEG LATI -1.2049 DEG

LOW RESOLUTION 36

| INDEX | LONGITUDE | LATITUDE |
|---|---|---|
| 1 | 43.9333539 | -0.2960170 |
| 2 | 43.8317800 | -0.4874049 |
| 3 | 43.7418857 | -0.6572810 |
| 4 | 43.6609230 | -0.8106777 |
| 5 | 43.5868626 | -0.9513301 |
| 6 | 43.5181565 | -1.0820940 |
| 7 | 43.4535890 | -1.2052312 |
| 8 | 43.3921728 | -1.3225799 |
| 9 | 43.3330846 | -1.4356852 |
| 10 | 43.2756119 | -1.5458938 |
| 11 | 43.2191114 | -1.6544195 |
| 12 | 43.1629872 | -1.7624048 |
| 13 | 43.0639076 | -1.7248814 |
| 14 | 42.9683905 | -1.6887105 |
| 15 | 42.8755593 | -1.6535563 |
| 16 | 42.7846265 | -1.6191228 |
| 17 | 42.6948657 | -1.5851349 |
| 18 | 42.6055865 | -1.5513306 |
| 19 | 42.5161185 | -1.5174563 |
| 20 | 42.4257770 | -1.4832524 |
| 21 | 42.3338556 | -1.4484543 |
| 22 | 42.2395992 | -1.4127734 |
| 23 | 42.1421695 | -1.3758929 |
| 24 | 42.1714211 | -1.2589379 |
| 25 | 42.2007351 | -1.1413920 |
| 26 | 42.2304168 | -1.0220191 |
| 27 | 42.2607889 | -0.8995043 |
| 28 | 42.2922020 | -0.7723902 |
| 29 | 42.3250594 | -0.6390035 |
| 30 | 42.3598328 | -0.4973539 |
| 31 | 42.3970976 | -0.3449988 |
| 32 | 42.4375777 | -0.1788442 |
| 33 | 42.4822087 | 0.0051478 |
| 34 | 42.5322433 | 0.2124146 |
| 35 | 42.6652441 | 0.1624552 |
| 36 | 42.7939510 | 0.1144484 |
| 37 | 42.9195395 | 0.0679279 |
| 38 | 43.0430703 | 0.0224790 |
| 39 | 43.1655383 | -0.0222784 |
| 40 | 43.2879038 | -0.0666951 |
| 41 | 43.4111228 | -0.1111161 |
| 42 | 43.5361781 | -0.1558905 |
| 43 | 43.6641164 | -0.2013719 |
| 44 | 43.7960792 | -0.2479410 |

HIGH RESOLUTION 36

| INDEX | LONGITUDE | LATITUDE |
|---|---|---|
| 1 | 43.1093178 | -0.6045520 |
| 2 | 43.0821257 | -0.6730648 |
| 3 | 43.0559225 | -0.7390948 |
| 4 | 43.0306005 | -0.8029160 |
| 5 | 43.0060620 | -0.8647728 |
| 6 | 42.9822202 | -0.9248861 |
| 7 | 42.9589920 | -0.9834559 |
| 8 | 42.9363065 | -1.0406689 |
| 9 | 42.9140964 | -1.0966893 |
| 10 | 42.8923001 | -1.1516774 |
| 11 | 42.8708577 | -1.2057760 |
| 12 | 42.8497152 | -1.2591249 |
| 13 | 42.8365459 | -1.2541875 |
| 14 | 42.8233871 | -1.2492535 |
| 15 | 42.8102374 | -1.2443221 |
| 16 | 42.7970977 | -1.2393924 |
| 17 | 42.7839627 | -1.2344653 |
| 18 | 42.7708325 | -1.2295390 |
| 19 | 42.7577052 | -1.2246128 |
| 20 | 42.7445774 | -1.2196856 |
| 21 | 42.7314487 | -1.2147577 |
| 22 | 42.7183185 | -1.2098280 |
| 23 | 42.7051806 | -1.2048949 |
| 24 | 42.7246170 | -1.1509859 |
| 25 | 42.7443213 | -1.0963171 |
| 26 | 42.7643466 | -1.0407526 |
| 27 | 42.7847466 | -0.9841423 |
| 28 | 42.8055773 | -0.9263290 |
| 29 | 42.8269000 | -0.8671412 |
| 30 | 42.8487806 | -0.8063960 |
| 31 | 42.8712931 | -0.7438895 |
| 32 | 42.8945174 | -0.6793972 |
| 33 | 42.9185419 | -0.6126731 |
| 34 | 42.9434657 | -0.5434406 |
| 35 | 42.9585342 | -0.5490072 |
| 36 | 42.9735980 | -0.5545695 |
| 37 | 42.9886589 | -0.5601284 |
| 38 | 43.0037189 | -0.5656839 |
| 39 | 43.0187817 | -0.5712360 |
| 40 | 43.0338488 | -0.5767881 |
| 41 | 43.0489221 | -0.5823394 |
| 42 | 43.0640025 | -0.5878906 |
| 43 | 43.0790949 | -0.5934427 |
| 44 | 43.0941987 | -0.5989965 |

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* PHOTO FRAME NUMBER 1 OF 1 *
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## FRAME 37

| | YEAR | MONTH | DAY | HOUR | MINUTE | SECOND |
|---|---|---|---|---|---|---|
| GMT | 67 | 2 | 15 | 20 | 49 | 52.599 |

| | | | | | | |
|---|---|---|---|---|---|---|
| LONGITUDE OF NADIR POINT | = | 133.8169622 | DEG | LATITUDE OF NADIR POINT | = | -19.3555143 DEG |
| LONG OF CAMERA AXIS INTERSECT | = | 102.8105211 | DEG | LATI OF CAMERA AXIS INTERSECT | = | -20.0374780 DEG |
| SPACECRAFT RADIUS | = | 2131.2007141 | KM | SPACECRAFT ALTITUDE | = | 393.1107178 KM |
| MEAN ALTITUDE RATE | = | 0.4482249 | KM/SEC | TIME FROM PERIAPSIS | = | 1274.6523437 SEC |
| HORIZONTAL VELOCITY | = | 1.6051914 | KM/SEC | TRUE ANOMALY | = | 68.9951000 DEG |
| SCALE FACTOR (HIGH) | = | 0.0015441 | M/KM | TILT DISTANCE (HIGH) | = | 54.9001169 MM |
| SCALE FACTOR (LOW) | = | 0.0002025 | M/KM | TILT DISTANCE (LOW) | = | 7.2000154 MM |
| IMAGE MOTION COMPENSATION (V/H) | = | -0.0012397 | RAD/SEC | SWING ANGLE | = | 153.1852970 DEG |
| EMISSION ANGLE | = | 6.3101652 | DEG | INCIDENCE ANGLE | = | 18.7048373 DEG |
| PHASE ANGLE | = | 15.0492318 | DEG | NORTH DEVIATION ANGLE | = | 98.5930824 DEG |
| TILT ANGLE | = | 5.1427755 | DEG | RESOLUTION CONSTANT | = | 8.5728171 MTR |
| TILT AZIMUTH | = | 234.0884094 | DEG | SUN AZIMUTH AT PRINCIPAL GND PT | = | 7.9177014 DEG |
| SUN ANGLE AT NADIR | = | 17.9206979 | DEG | SUN ARC AT NADIR | = | 543.6314240 KM |
| LONGITUDE DISTANCE TO TARGET | = | -0.1830378 | DEG | LATITUDE DISTANCE TO TARGET | = | 2.9594858 DEG |
| LONGITUDE ARC LENGTH TO TARGET | = | -5.5525224 | KM | LATITUDE ARC LENGTH TO TARGET | = | 89.7771645 KM |
| FORWARD OVERLAP RATIO | = | 0. | PCT | SIDE OVERLAP RATIO | = | 0. PCT |
| TIME BETWEEN PHOTOS | = | 0. | SEC | ALPHA | = | 2.8104327 DEG. |

| | X | Y | Z | MAGNITUDE (KM) |
|---|---|---|---|---|
| DIRECTION COSINES TO TARGET | 0.22493356 | -0.96763525 | 0.11439801 | 405.52397156 |
| CAMERA AXIS | 0.29907598 | -0.91207383 | 0.28049047 | 395.06069946 |
| C1 | 0.46569491 | -0.83709949 | 0.28704128 | 409.77217102 |
| C2 | 0.13009541 | -0.92828203 | 0.34837861 | 395.41580200 |
| C3 | 0.12246015 | -0.95656125 | 0.26456399 | 397.17771912 |
| C4 | 0.45805962 | -0.86537871 | 0.20322666 | 411.68103027 |

| | X | Y | Z | X DOT | Y DOT | Z DOT |
|---|---|---|---|---|---|---|
| STATE VECTOR (1950.0) | 1650.9299316 | -821.7170181 | -1068.2827301 | 1.2126735 | 1.1384717 | 0.1041674 |

LONG 96.2044 DEG
LATI -16.1125 DEG

LONG 107.4028 DEG
LATI -14.8746 DEG

(1) • 328.97020 KM • (2)

LOW RESOLUTION

294.42587 KM 269.79972 KM

(4) • 341.68726 KM • (3)

LONG 97.1285 DEG
LATI -25.7916 DEG

LONG 109.3130 DEG
LATI -23.5933 DEG

LONG 100.1923 DEG
LATI -19.7987 DEG

LONG 105.1325 DEG
LATI -19.0949 DEG

(1) • 142.87011 KM • (2)

HIGH RESOLUTION

36.51647 KM 35.22949 KM

(4) • 143.52939 KM • (3)

LONG 100.3534 DEG
LATI -20.9930 DEG

LONG 105.3456 DEG
LATI -20.2387 DEG

LOW RESOLUTION 37

| INDEX | LONGITUDE | LATITUDE |
|---|---|---|
| 1 | 96.2044191 | -16.1125329 |
| 2 | 97.4492235 | -16.0417953 |
| 3 | 98.5884371 | -15.9624805 |
| 4 | 99.6504679 | -15.8759676 |
| 5 | 100.6569691 | -15.7827637 |
| 6 | 101.6253366 | -15.6827698 |
| 7 | 102.5703182 | -15.5754145 |
| 8 | 103.5051460 | -15.4596872 |
| 9 | 104.4424295 | -15.3341262 |
| 10 | 105.3949490 | -15.1967242 |
| 11 | 106.3764753 | -15.0447720 |
| 12 | 107.4027576 | -14.8746125 |
| 13 | 107.5514240 | -15.7048398 |
| 14 | 107.7002821 | -16.5022302 |
| 15 | 107.8506374 | -17.2763844 |
| 16 | 108.0038500 | -18.0357537 |
| 17 | 108.1613798 | -18.7880931 |
| 18 | 108.3248615 | -19.5408370 |
| 19 | 108.4961739 | -20.3014443 |
| 20 | 108.6775465 | -21.0777404 |
| 21 | 108.8717003 | -21.8783062 |
| 22 | 109.0820522 | -22.7129483 |
| 23 | 109.3130121 | -23.5933411 |
| 24 | 108.1952324 | -23.7918143 |
| 25 | 107.1283331 | -23.9820914 |
| 26 | 106.0943804 | -24.1672032 |
| 27 | 105.0777960 | -24.3498228 |
| 28 | 104.0641861 | -24.5324502 |
| 29 | 103.0393600 | -24.7175841 |
| 30 | 101.9883995 | -24.9078801 |
| 31 | 100.8945875 | -25.1063294 |
| 32 | 99.7380552 | -25.3165114 |
| 33 | 98.4937887 | -25.5429349 |
| 34 | 97.1285019 | -25.7916007 |
| 35 | 97.0827579 | -24.7930365 |
| 36 | 97.0288534 | -23.8529940 |
| 37 | 96.9678307 | -22.9565685 |
| 38 | 96.9001760 | -22.0915327 |
| 39 | 96.8259630 | -21.2474186 |
| 40 | 96.7449245 | -20.4148510 |
| 41 | 96.6564789 | -19.5850344 |
| 42 | 96.5597191 | -18.7492983 |
| 43 | 96.4533749 | -17.8986812 |
| 44 | 96.3357143 | -17.0234470 |

HIGH RESOLUTION 37

| INDEX | LONGITUDE | LATITUDE |
|---|---|---|
| 1 | 100.1923141 | -19.7986870 |
| 2 | 100.6699543 | -19.7368515 |
| 3 | 101.1374674 | -19.6750357 |
| 4 | 101.5965090 | -19.6130962 |
| 5 | 102.0486126 | -19.5508912 |
| 6 | 102.4952106 | -19.4882720 |
| 7 | 102.9376650 | -19.4250901 |
| 8 | 103.3772783 | -19.3611844 |
| 9 | 103.8153191 | -19.2963896 |
| 10 | 104.2530346 | -19.2305312 |
| 11 | 104.6916704 | -19.1634204 |
| 12 | 105.1324816 | -19.0948529 |
| 13 | 105.1515474 | -19.1985481 |
| 14 | 105.1706638 | -19.3022439 |
| 15 | 105.1898336 | -19.4059622 |
| 16 | 105.2090597 | -19.5097196 |
| 17 | 105.2283468 | -19.6135359 |
| 18 | 105.2477007 | -19.7174299 |
| 19 | 105.2671213 | -19.8214211 |
| 20 | 105.2866163 | -19.9255278 |
| 21 | 105.3061876 | -20.0297711 |
| 22 | 105.3258390 | -20.1341679 |
| 23 | 105.3455772 | -20.2387397 |
| 24 | 104.9001369 | -20.3104568 |
| 25 | 104.4569101 | -20.3809657 |
| 26 | 104.0146217 | -20.4504747 |
| 27 | 103.5720091 | -20.5191832 |
| 28 | 103.1278057 | -20.5872784 |
| 29 | 102.6807241 | -20.6549432 |
| 30 | 102.2294397 | -20.7223556 |
| 31 | 101.7725725 | -20.7896876 |
| 32 | 101.3086653 | -20.8571153 |
| 33 | 100.8361616 | -20.9248142 |
| 34 | 100.3533773 | -20.9929633 |
| 35 | 100.3389063 | -20.8836863 |
| 36 | 100.3244095 | -20.7746108 |
| 37 | 100.3098831 | -20.6657197 |
| 38 | 100.2953262 | -20.5569899 |
| 39 | 100.2807331 | -20.4484010 |
| 40 | 100.2661037 | -20.3399324 |
| 41 | 100.2514362 | -20.2315645 |
| 42 | 100.2367249 | -20.1232762 |
| 43 | 100.2219687 | -20.0150468 |
| 44 | 100.2071667 | -19.9068575 |

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* PHOTO FRAME NUMBER 1 OF 1 *
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## FRAME 38

| | YEAR | MONTH | DAY | HOUR | MINUTE | SECOND |
|---|---|---|---|---|---|---|
| GMT | 67 | 2 | 15 | 23 | 58 | 43.098 |

| | | | | | | |
|---|---|---|---|---|---|---|
| LONGITUDE OF NADIR POINT | = | 39.7637801 | DEG | LATITUDE OF NADIR POINT | = | -1.8853601 DEG |
| LONG OF CAMERA AXIS INTERSECT | = | 38.8053346 | DEG | LATI OF CAMERA AXIS INTERSECT | = | -4.3885467 DEG |
| SPACECRAFT RADIUS | = | 1789.8862915 | KM | SPACECRAFT ALTITUDE | = | 51.7962952 KM |
| MEAN ALTITUDE RATE | = | 0.0471470 | KM/SEC | TIME FROM PERIAPSIS | = | 91.9005146 SEC |
| HORIZONTAL VELOCITY | = | 1.9112452 | KM/SEC | TRUE ANOMALY | = | 5.6316257 DEG |
| SCALE FACTOR (HIGH) | = | 0.0062626 | M/KM | TILT DISTANCE (HIGH) | = | 923.1718216 MM |
| SCALE FACTOR (LOW) | = | 0.0008213 | M/KM | TILT DISTANCE (LOW) | = | 121.0717144 MM |
| IMAGE MOTION COMPENSATION (V/H) | = | 0.0196257 | RAD/SEC | SWING ANGLE | = | 358.8164597 DEG |
| EMISSION ANGLE | = | 59.2245121 | DEG | INCIDENCE ANGLE | = | 64.9025221 DEG |
| PHASE ANGLE | = | 59.9772868 | DEG | NORTH DEVIATION ANGLE | = | 322.0093498 DEG |
| TILT ANGLE | = | 56.5446515 | DEG | RESOLUTION CONSTANT | = | 2.1136482 MTR |
| TILT AZIMUTH | = | 200.8984127 | DEG | SUN AZIMUTH AT PRINCIPAL GND PT | = | 89.5971670 DEG |
| SUN ANGLE AT NADIR | = | 63.9526925 | DEG | SUN ARC AT NADIR | = | 1940.0300903 KM |
| LONGITUDE DISTANCE TO TARGET | = | 1.0137801 | DEG | LATITUDE DISTANCE TO TARGET | = | 2.6146398 DEG |
| LONGITUDE ARC LENGTH TO TARGET | = | 30.7534184 | KM | LATITUDE ARC LENGTH TO TARGET | = | 79.3161278 KM |
| FORWARD OVERLAP RATIO | = | 0. | PCT | SIDE OVERLAP RATIO | = | 0. PCT |
| TIME BETWEEN PHOTOS | = | 0. | SEC | ALPHA | = | -20.7839289 DEG. |

| | X | Y | Z | MAGNITUDE (KM) |
|---|---|---|---|---|
| DIRECTION COSINES TO TARGET | -0.23634540 | -0.59290549 | -0.76980773 | 100.65115070 |
| CAMERA AXIS | -0.25289098 | -0.59759706 | -0.76087049 | 97.40314484 |
| C1 | -0.41016407 | -0.61869334 | -0.67006267 | 76.50708008 |
| C2 | -0.13962540 | -0.49276565 | -0.85888693 | 144.31734467 |
| C3 | -0.08716480 | -0.55652554 | -0.82624550 | 143.61660004 |
| C4 | -0.35770344 | -0.68245322 | -0.63742126 | 76.32626343 |

| | X | Y | Z | X DOT | Y DOT | Z DOT |
|---|---|---|---|---|---|---|
| STATE VECTOR (1950.0) | -240.0873604 | -1616.2214813 | -730.6703262 | 1.7792037 | -0.0002076 | -0.6996543 |

LONG 39.9778 DEG
LATI -3.2487 DEG

LONG 39.1982 DEG
LATI -13.7702 DEG

* 66.98900 KM *
(1) (2)

LOW RESOLUTION

40.35983 KM 217.76994 KM

(4) (3)
* 311.14596 KM *

LONG 38.7450 DEG
LATI -2.7443 DEG

LONG 32.1423 DEG
LATI -10.8459 DEG

LONG 39.2249 DEG
LATI -3.6336 DEG

LONG 38.3788 DEG
LATI -6.0384 DEG

* 77.29891 KM *
(1) (2)

HIGH RESOLUTION

6.78712 KM 12.80136 KM

(4) (3)
* 76.77863 KM *

LONG 39.0181 DEG
LATI -3.5473 DEG

LONG 37.9929 DEG
LATI -5.8631 DEG

LOW RESOLUTION 38

| INDEX | LONGITUDE | LATITUDE |
|---|---|---|
| 1 | 39.9778366 | -3.2487043 |
| 2 | 39.9595308 | -3.4492771 |
| 3 | 39.9389915 | -3.6761469 |
| 4 | 39.9154992 | -3.9380710 |
| 5 | 39.8880124 | -4.2479157 |
| 6 | 39.8549504 | -4.6255807 |
| 7 | 39.8137636 | -5.1039808 |
| 8 | 39.7599607 | -5.7428955 |
| 9 | 39.6845112 | -6.6676033 |
| 10 | 39.5642743 | -8.2191361 |
| 11 | 39.2701435 | -12.5501692 |
| 12 | 0. | 0. |
| 13 | 0. | 0. |
| 14 | 0. | 0. |
| 15 | 0. | 0. |
| 16 | 0. | 0. |
| 17 | 0. | 0. |
| 18 | 0. | 0. |
| 19 | 0. | 0. |
| 20 | 0. | 0. |
| 21 | 0. | 0. |
| 22 | 0. | 0. |
| 23 | 0. | 0. |
| 24 | 33.7470512 | -8.9596678 |
| 25 | 35.8410692 | -6.4149776 |
| 26 | 36.7221408 | -5.3177606 |
| 27 | 37.2607899 | -4.6396774 |
| 28 | 37.6372099 | -4.1626459 |
| 29 | 37.9209428 | -3.8013955 |
| 30 | 38.1459341 | -3.5139274 |
| 31 | 38.3311319 | -3.2766457 |
| 32 | 38.4880891 | -3.0750903 |
| 33 | 38.6243234 | -2.8998071 |
| 34 | 38.7449799 | -2.7443102 |
| 35 | 38.8625598 | -2.7914641 |
| 36 | 38.9762764 | -2.8372597 |
| 37 | 39.0871572 | -2.8820939 |
| 38 | 39.1961331 | -2.9263313 |
| 39 | 39.3040729 | -2.9703186 |
| 40 | 39.4118118 | -3.0143912 |
| 41 | 39.5201807 | -3.0588916 |
| 42 | 39.6300254 | -3.1041715 |
| 43 | 39.7422471 | -3.1506134 |
| 44 | 39.8578196 | -3.1986330 |

CORNER 2 , 3 OF LOW RESOLUTION FRAME 1 IS OFF THE MOON

HIGH RESOLUTION 38

| INDEX | LONGITUDE | LATITUDE |
|---|---|---|
| 1 | 39.2249098 | -3.6335547 |
| 2 | 39.1827416 | -3.7534544 |
| 3 | 39.1370430 | -3.8833979 |
| 4 | 39.0872087 | -4.0250996 |
| 5 | 39.0324893 | -4.1806921 |
| 6 | 38.9719367 | -4.3528650 |
| 7 | 38.9043388 | -4.5450639 |
| 8 | 38.8281026 | -4.7618020 |
| 9 | 38.7410989 | -5.0091258 |
| 10 | 38.6403813 | -5.2953824 |
| 11 | 38.5217309 | -5.6325137 |
| 12 | 38.3788137 | -6.0384301 |
| 13 | 38.3436513 | -6.0220590 |
| 14 | 38.3085237 | -6.0057844 |
| 15 | 38.2734251 | -5.9896020 |
| 16 | 38.2383475 | -5.9735109 |
| 17 | 38.2032866 | -5.9575061 |
| 18 | 38.1682343 | -5.9415832 |
| 19 | 38.1331844 | -5.9257405 |
| 20 | 38.0981302 | -5.9099756 |
| 21 | 38.0630660 | -5.8942841 |
| 22 | 38.0279856 | -5.8786635 |
| 23 | 37.9928808 | -5.8631111 |
| 24 | 38.1660075 | -5.4734309 |
| 25 | 38.3097730 | -5.1493683 |
| 26 | 38.4318223 | -4.8739341 |
| 27 | 38.5372586 | -4.6357680 |
| 28 | 38.6296449 | -4.4269170 |
| 29 | 38.7115617 | -4.2416071 |
| 30 | 38.7849374 | -4.0755260 |
| 31 | 38.8512421 | -3.9253737 |
| 32 | 38.9116235 | -3.7885752 |
| 33 | 38.9669919 | -3.6630884 |
| 34 | 39.0180783 | -3.5472638 |
| 35 | 39.0368738 | -3.5550639 |
| 36 | 39.0556641 | -3.5628699 |
| 37 | 39.0744481 | -3.5706837 |
| 38 | 39.0932317 | -3.5785025 |
| 39 | 39.1120162 | -3.5863316 |
| 40 | 39.1308055 | -3.5941701 |
| 41 | 39.1496010 | -3.6020206 |
| 42 | 39.1684065 | -3.6098821 |
| 43 | 39.1872253 | -3.6177582 |
| 44 | 39.2060580 | -3.6256488 |

**********
* PHOTO FRAME NUMBER 1 OF 1 *
**********

## FRAME 39

| | YEAR | MONTH | DAY | HOUR | MINUTE | SECOND |
|---|---|---|---|---|---|---|
| GMT | 67 | 2 | 16 | 3 | 24 | 46.200 |

| | | | | | |
|---|---|---|---|---|---|
| LONGITUDE OF NADIR POINT | = | 29.3609710 | DEG | LATITUDE OF NADIR POINT | = 1.3642987 DEG |
| LONG OF CAMERA AXIS INTERSECT | = | 25.1963091 | DEG | LATI OF CAMERA AXIS INTERSECT | = 3.4197783 DEG |
| SPACECRAFT RADIUS | = | 1788.2158051 | KM | SPACECRAFT ALTITUDE | = 50.1258087 KM |
| MEAN ALTITUDE RATE | = | -0.0299348 | KM/SEC | TIME FROM PERIAPSIS | = -58.2094927 SEC |
| HORIZONTAL VELOCITY | = | 1.9129610 | KM/SEC | TRUE ANOMALY | = 356.4298439 DEG |
| SCALE FACTOR (HIGH) | = | 0.0043561 | M/KM | TILT DISTANCE (HIGH) | = 1431.1627350 MM |
| SCALE FACTOR (LOW) | = | 0.0005713 | M/KM | TILT DISTANCE (LOW) | = 187.6934738 MM |
| IMAGE MOTION COMPENSATION (V/H) | = | 0.0086890 | RAD/SEC | SWING ANGLE | = 19.6567528 DEG |
| EMISSION ANGLE | = | 71.1653805 | DEG | INCIDENCE ANGLE | = 76.8643045 DEG |
| PHASE ANGLE | = | 15.0491841 | DEG | NORTH DEVIATION ANGLE | = 293.8738823 DEG |
| TILT ANGLE | = | 66.9149942 | DEG | RESOLUTION CONSTANT | = 3.0386912 MTR |
| TILT AZIMUTH | = | 257.1984978 | DEG | SUN AZIMUTH AT PRINCIPAL GND PT | = 91.6329861 DEG |
| SUN ANGLE AT NADIR | = | 72.7518759 | DEG | SUN ARC AT NADIR | = 2206.9567871 KM |
| LONGITUDE DISTANCE TO TARGET | = | 4.7839711 | DEG | LATITUDE DISTANCE TO TARGET | = 0.9142987 DEG |
| LONGITUDE ARC LENGTH TO TARGET | = | 145.1236439 | KM | LATITUDE ARC LENGTH TO TARGET | = 27.7356095 KM |
| FORWARD OVERLAP RATIO | = | 0. | PCT | SIDE OVERLAP RATIO | = 0. PCT |
| TIME BETWEEN PHOTOS | = | 0. | SEC | ALPHA | = 45.2325125 DEG. |

| | X | Y | Z | MAGNITUDE (KM) |
|---|---|---|---|---|
| DIRECTION COSINES TO TARGET | 0.14142887 | -0.97286572 | -0.18311246 | 157.96485138 |
| CAMERA AXIS | 0.10141490 | -0.97175078 | -0.21310899 | 140.33185272 |
| C1 | -0.07829548 | -0.98042955 | -0.18063142 | 93.96601868 |
| C2 | 0.24076664 | -0.91699836 | -0.31803373 | 309.11390305 |
| C3 | 0.26113033 | -0.93708447 | -0.23169730 | 379.62422943 |
| C4 | -0.04132670 | -0.99402153 | -0.10106090 | 99.45088196 |

| | X | Y | Z | X DOT | Y DOT | Z DOT |
|---|---|---|---|---|---|---|
| STATE VECTOR (1950.0) | -503.1925201 | -1600.2119446 | -619.5440216 | 1.7317690 | -0.2065984 | -0.7865176 |

LONG 27.9938 DEG
LATI 0.6906 DEG

(1) • 67.52344 KM

LONG 19.1893 DEG
LATI -5.9212 DEG

(2) •

LONG 26.7702 DEG
LATI 0.9445 DEG

(1) • 223.40720 KM

LONG 19.9048 DEG
LATI -1.8375 DEG

(2) •

LOW RESOLUTION

53.68356 KM

385.62760 KM

HIGH RESOLUTION

10.18575 KM

309.11390 KM

(4) • 184.79062 KM (3) •

LONG 26.8985 DEG
LATI 2.0809 DEG

LONG 16.9842 DEG
LATI 2.3416 DEG

(4) • 283.79024 KM (3) •

LONG 26.5238 DEG
LATI 1.0723 DEG

LONG 17.3854 DEG
LATI -1.4962 DEG

LOW RESOLUTION 39

| INDEX | LONGITUDE | LATITUDE |
|---|---|---|
| 1 | 27.9938214 | 0.6905552 |
| 2 | 27.8246555 | 0.5583970 |
| 3 | 27.6301661 | 0.4066601 |
| 4 | 27.4012661 | 0.2283605 |
| 5 | 27.1240661 | 0.0128570 |
| 6 | 26.7759666 | -0.2571003 |
| 7 | 26.3168912 | -0.6119576 |
| 8 | 25.6660669 | -1.1126830 |
| 9 | 24.6205153 | -1.9110493 |
| 10 | 22.2980623 | -3.6555394 |
| 11 | 0. | 0. |
| 12 | 0. | 0. |
| 13 | 0. | 0. |
| 14 | 0. | 0. |
| 15 | 0. | 0. |
| 16 | 0. | 0. |
| 17 | 0. | 0. |
| 18 | 0. | 0. |
| 19 | 0. | 0. |
| 20 | 0. | 0. |
| 21 | 0. | 0. |
| 22 | 0. | 0. |
| 23 | 0. | 0. |
| 24 | 0. | 0. |
| 25 | 0. | 0. |
| 26 | 0. | 0. |
| 27 | 0. | 0. |
| 28 | 18.5880382 | 2.2480201 |
| 29 | 22.8937085 | 2.0948805 |
| 30 | 24.4409945 | 2.0747860 |
| 31 | 25.3723330 | 2.0716023 |
| 32 | 26.0210807 | 2.0733440 |
| 33 | 26.5101497 | 2.0768052 |
| 34 | 26.8984861 | 2.0808692 |
| 35 | 27.0413737 | 1.9041432 |
| 36 | 27.1691785 | 1.7449186 |
| 37 | 27.2851150 | 1.5995253 |
| 38 | 27.3916156 | 1.4651584 |
| 39 | 27.4905684 | 1.3396186 |
| 40 | 27.5834687 | 1.2211396 |
| 41 | 27.6715391 | 1.1082665 |
| 42 | 27.7557938 | 0.9997740 |
| 43 | 27.8370988 | 0.8946062 |
| 44 | 27.9162133 | 0.7918178 |

CORNER 2 , 3 OF LOW RESOLUTION FRAME 1 IS OFF THE MOON

HIGH RESOLUTION 39

| INDEX | LONGITUDE | LATITUDE |
|---|---|---|
| 1 | 26.7701592 | 0.8440244 |
| 2 | 26.5890036 | 0.7691015 |
| 3 | 26.3854823 | 0.6851901 |
| 4 | 26.1542466 | 0.5901847 |
| 5 | 25.8879797 | 0.4812286 |
| 6 | 25.5763342 | 0.3543118 |
| 7 | 25.2040341 | 0.2035516 |
| 8 | 24.7471731 | 0.0198383 |
| 9 | 24.1652329 | -0.2121047 |
| 10 | 23.3805847 | -0.5211229 |
| 11 | 22.2090240 | -0.9744878 |
| 12 | 19.9047968 | -1.8375258 |
| 13 | 19.5342638 | -1.8776403 |
| 14 | 19.0913596 | -1.9350967 |
| 15 | 18.5265055 | -2.0235323 |
| 16 | 17.6788604 | -2.1886069 |
| 17 | 0. | 0. |
| 18 | 0. | 0. |
| 19 | 0. | 0. |
| 20 | 0. | 0. |
| 21 | 0. | 0. |
| 22 | 0. | 0. |
| 23 | 0. | 0. |
| 24 | 19.9045780 | -0.8474941 |
| 25 | 22.1001375 | -0.2448589 |
| 26 | 23.2636969 | 0.0883852 |
| 27 | 24.0526383 | 0.3197382 |
| 28 | 24.6416733 | 0.4952920 |
| 29 | 25.1061392 | 0.6354133 |
| 30 | 25.4858594 | 0.7510706 |
| 31 | 25.8045125 | 0.8488917 |
| 32 | 26.0773277 | 0.9331908 |
| 33 | 26.3146567 | 1.0069381 |
| 34 | 26.5238483 | 1.0722594 |
| 35 | 26.5476010 | 1.0504122 |
| 36 | 26.5710526 | 1.0288058 |
| 37 | 26.5942166 | 1.0074324 |
| 38 | 26.6171014 | 0.9862844 |
| 39 | 26.6397152 | 0.9653567 |
| 40 | 26.6620657 | 0.9446416 |
| 41 | 26.6841633 | 0.9241323 |
| 42 | 26.7060118 | 0.9038210 |
| 43 | 26.7276242 | 0.8837027 |
| 44 | 26.7490034 | 0.8637730 |

CORNER 3 OF HIGH RESOLUTION FRAME 1 IS OFF THE MOON

**********
* PHOTO FRAME NUMBER 1 OF 4 *
**********

# FRAME 40

| | YEAR | MONTH | DAY | HOUR | MINUTE | SECOND |
|---|---|---|---|---|---|---|
| GMT | 67 | 2 | 16 | 6 | 51 | 4.300 |

| | | | | | |
|---|---|---|---|---|---|
| LONGITUDE OF NADIR POINT | = | 19.7121377 | DEG | LATITUDE OF NADIR POINT | = 4.1707951 DEG |
| LONG OF CAMERA AXIS INTERSECT | = | 19.4320066 | DEG | LATI OF CAMERA AXIS INTERSECT | = 3.6477128 DEG |
| SPACECRAFT RADIUS | = | 1796.6256104 | KM | SPACECRAFT ALTITUDE | = 58.5356140 KM |
| MEAN ALTITUDE RATE | = | -0.0986920 | KM/SEC | TIME FROM PERIAPSIS | = -193.6039161 SEC |
| HORIZONTAL VELOCITY | = | 1.9039763 | KM/SEC | TRUE ANOMALY | = 348.1602478 DEG |
| SCALE FACTOR (HIGH) | = | 0.0099467 | M/KM | TILT DISTANCE (HIGH) | = 187.1807194 MM |
| SCALE FACTOR (LOW) | = | 0.0013045 | M/KM | TILT DISTANCE (LOW) | = 24.5482912 MM |
| IMAGE MOTION COMPENSATION (V/H) | = | 0.0310862 | RAD/SEC | SWING ANGLE | = 8.1095907 DEG |
| EMISSION ANGLE | = | 17.6518869 | DEG | INCIDENCE ANGLE | = 80.9464149 DEG |
| PHASE ANGLE | = | 73.6645985 | DEG | NORTH DEVIATION ANGLE | = 338.9202728 DEG |
| TILT ANGLE | = | 17.0588224 | DEG | RESOLUTION CONSTANT | = 1.3307925 MTR |
| TILT AZIMUTH | = | 208.1249104 | DEG | SUN AZIMUTH AT PRINCIPAL GND PT | = 92.0976915 DEG |
| SUN ANGLE AT NADIR | = | 80.6867580 | DEG | SUN ARC AT NADIR | = 2447.6645508 KM |
| LONGITUDE DISTANCE TO TARGET | = | -0.5378623 | DEG | LATITUDE DISTANCE TO TARGET | = 0.8377951 DEG |
| LONGITUDE ARC LENGTH TO TARGET | = | -16.3162644 | KM | LATITUDE ARC LENGTH TO TARGET | = 25.4148450 KM |
| FORWARD OVERLAP RATIO | = | 0. | PCT | SIDE OVERLAP RATIO | = 0. PCT |
| TIME BETWEEN PHOTOS | = | 0. | SEC | ALPHA | = 6.8999014 DEG. |

| | X | Y | Z | MAGNITUDE (KM) |
|---|---|---|---|---|
| DIRECTION COSINES TO TARGET | -0.89209618 | -0.05783519 | -0.44812889 | 66.09129620 |
| CAMERA AXIS | -0.83324148 | -0.44543622 | -0.32755946 | 61.32684326 |
| C1 | -0.99487592 | -0.06210063 | -0.07978358 | 61.01026917 |
| C2 | -0.67737047 | -0.19260587 | -0.70998044 | 78.82778931 |
| C3 | -0.47624137 | -0.72433268 | -0.49853417 | 81.75573730 |
| C4 | -0.79374675 | -0.59382747 | 0.13166255 | 62.72654724 |

| | X | Y | Z | X DOT | Y DOT | Z DOT |
|---|---|---|---|---|---|---|
| STATE VECTOR (1950.0) | -731.7924118 | -1558.9587097 | -511.8507919 | 1.6604576 | -0.3853134 | -0.8539794 |

LONG 20.2709 DEG
LATI 4.1506 DEG

LONG 19.8348 DEG
LATI 2.4633 DEG

(1) • 52.86024 KM • (2)

LOW RESOLUTION

37.56154 KM 48.78035 KM

(4) • 54.80060 KM • (3)

LONG 19.1078 DEG
LATI 4.5846 DEG

LONG 18.3053 DEG
LATI 2.9652 DEG

LONG 19.6385 DEG
LATI 3.9559 DEG

LONG 19.3831 DEG
LATI 3.2371 DEG

(1) • 23.13475 KM • (2)

HIGH RESOLUTION

5.24932 KM 5.88113 KM

(4) • 23.23938 KM • (3)

LONG 19.4755 DEG
LATI 4.0151 DEG

LONG 19.1995 DEG
LATI 3.3032 DEG

LOW RESOLUTION 40

| INDEX | LONGITUDE | LATITUDE |
|---|---|---|
| 1 | 20.2709227 | 4.1506214 |
| 2 | 20.2365139 | 4.0199471 |
| 3 | 20.2023270 | 3.8897030 |
| 4 | 20.1680024 | 3.7585318 |
| 5 | 20.1331823 | 3.6250392 |
| 6 | 20.0974817 | 3.4877276 |
| 7 | 20.0604780 | 3.3449271 |
| 8 | 20.0216846 | 3.1946980 |
| 9 | 19.9805276 | 3.0347230 |
| 10 | 19.9362988 | 2.8621335 |
| 11 | 19.8881075 | 2.6732634 |
| 12 | 19.8347836 | 2.4632966 |
| 13 | 19.6927617 | 2.5117166 |
| 14 | 19.5547059 | 2.5584258 |
| 15 | 19.4194100 | 2.6038593 |
| 16 | 19.2857585 | 2.6484101 |
| 17 | 19.1526966 | 2.6924383 |
| 18 | 19.0191782 | 2.7362873 |
| 19 | 18.8841550 | 2.7803002 |
| 20 | 18.7465203 | 2.8248193 |
| 21 | 18.6050816 | 2.8702068 |
| 22 | 18.4585164 | 2.9168527 |
| 23 | 18.3053052 | 2.9651951 |
| 24 | 18.4068575 | 3.1677256 |
| 25 | 18.4977672 | 3.3496212 |
| 26 | 18.5804918 | 3.5156178 |
| 27 | 18.6568787 | 3.6693031 |
| 28 | 18.7283616 | 3.8134790 |
| 29 | 18.7960937 | 3.9504029 |
| 30 | 18.8610244 | 4.0819532 |
| 31 | 18.9239697 | 4.2097477 |
| 32 | 18.9856486 | 4.3352303 |
| 33 | 19.0467277 | 4.4597455 |
| 34 | 19.1078482 | 4.5845902 |
| 35 | 19.2227390 | 4.5417052 |
| 36 | 19.3330679 | 4.5005268 |
| 37 | 19.4398971 | 4.4606565 |
| 38 | 19.5441687 | 4.4217440 |
| 39 | 19.6467421 | 4.3834676 |
| 40 | 19.7484221 | 4.3455285 |
| 41 | 19.8499808 | 4.3076363 |
| 42 | 19.9521940 | 4.2695051 |
| 43 | 20.0558488 | 4.2308376 |
| 44 | 20.1617885 | 4.1913233 |

HIGH RESOLUTION 40

| INDEX | LONGITUDE | LATITUDE |
|---|---|---|
| 1 | 19.6385119 | 3.9559183 |
| 2 | 19.6172435 | 3.8961115 |
| 3 | 19.5957615 | 3.8356916 |
| 4 | 19.5740108 | 3.7745127 |
| 5 | 19.5519423 | 3.7124220 |
| 6 | 19.5294940 | 3.6492607 |
| 7 | 19.5066078 | 3.5848555 |
| 8 | 19.4832194 | 3.5190235 |
| 9 | 19.4592562 | 3.4515635 |
| 10 | 19.4346411 | 3.3822584 |
| 11 | 19.4092903 | 3.3108710 |
| 12 | 19.3831108 | 3.2371374 |
| 13 | 19.3664725 | 3.2428696 |
| 14 | 19.3498309 | 3.2485993 |
| 15 | 19.3331826 | 3.2543289 |
| 16 | 19.3165269 | 3.2600569 |
| 17 | 19.2998607 | 3.2657857 |
| 18 | 19.2831788 | 3.2715154 |
| 19 | 19.2664816 | 3.2772468 |
| 20 | 19.2497661 | 3.2829824 |
| 21 | 19.2330313 | 3.2887207 |
| 22 | 19.2162719 | 3.2944640 |
| 23 | 19.1994891 | 3.3002116 |
| 24 | 19.2278345 | 3.3735627 |
| 25 | 19.2552686 | 3.4445753 |
| 26 | 19.2818980 | 3.5135116 |
| 27 | 19.3078108 | 3.5806088 |
| 28 | 19.3330941 | 3.6460838 |
| 29 | 19.3578229 | 3.7101365 |
| 30 | 19.3820696 | 3.7729495 |
| 31 | 19.4059007 | 3.8346918 |
| 32 | 19.4293771 | 3.8955275 |
| 33 | 19.4525576 | 3.9556049 |
| 34 | 19.4754994 | 4.0150686 |
| 35 | 19.4903877 | 4.0096701 |
| 36 | 19.5052576 | 4.0042786 |
| 37 | 19.5201097 | 3.9988921 |
| 38 | 19.5349448 | 3.9935108 |
| 39 | 19.5497653 | 3.9881346 |
| 40 | 19.5645742 | 3.9827601 |
| 41 | 19.5793729 | 3.9773893 |
| 42 | 19.5941637 | 3.9720204 |
| 43 | 19.6089497 | 3.9666528 |
| 44 | 19.6237314 | 3.9612851 |

**********
* PHOTO FRAME NUMBER 2 OF 4 *
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## FRAME 41

| | YEAR | MONTH | DAY | HOUR | MINUTE | SECOND |
|---|---|---|---|---|---|---|
| GMT | 67 | 2 | 16 | 6 | 51 | 14.900 |

| | | | | | |
|---|---|---|---|---|---|
| LONGITUDE OF NADIR POINT | = | 20.3149171 | DEG | LATITUDE OF NADIR POINT | = 3.9445665 DEG |
| LONG OF CAMERA AXIS INTERSECT | = | 20.0594685 | DEG | LATI OF CAMERA AXIS INTERSECT | = 3.4235144 DEG |
| SPACECRAFT RADIUS | = | 1795.6076202 | KM | SPACECRAFT ALTITUDE | = 57.5176239 KM |
| MEAN ALTITUDE RATE | = | -0.0933975 | KM/SEC | TIME FROM PERIAPSIS | = -183.0112553 SEC |
| HORIZONTAL VELOCITY | = | 1.9050538 | KM/SEC | TRUE ANOMALY | = 348.8037987 DEG |
| SCALE FACTOR (HIGH) | = | 0.0101271 | M/KM | TILT DISTANCE (HIGH) | = 186.3278694 MM |
| SCALE FACTOR (LOW) | = | 0.0013281 | M/KM | TILT DISTANCE (LOW) | = 24.4364419 MM |
| IMAGE MOTION COMPENSATION (V/H) | = | 0.0316597 | RAD/SEC | SWING ANGLE | = 6.0044642 DEG |
| EMISSION ANGLE | = | 17.5656517 | DEG | INCIDENCE ANGLE | = 80.3108587 DEG |
| PHASE ANGLE | = | 73.6646004 | DEG | NORTH DEVIATION ANGLE | = 338.8471375 DEG |
| TILT ANGLE | = | 16.9855812 | DEG | RESOLUTION CONSTANT | = 1.3070826 MTR |
| TILT AZIMUTH | = | 206.3782757 | DEG | SUN AZIMUTH AT PRINCIPAL GND PT | = 92.1032991 DEG |
| SUN ANGLE AT NADIR | = | 80.0757294 | DEG | SUN ARC AT NADIR | = 2429.1287537 KM |
| LONGITUDE DISTANCE TO TARGET | = | 0.0649171 | DEG | LATITUDE DISTANCE TO TARGET | = 0.6115665 DEG |
| LONGITUDE ARC LENGTH TO TARGET | = | 1.9692854 | KM | LATITUDE ARC LENGTH TO TARGET | = 18.5521107 KM |
| FORWARD OVERLAP RATIO | = | 52.2591901 | PCT | SIDE OVERLAP RATIO | = 0. PCT |
| TIME BETWEEN PHOTOS | = | 10.5999827 | SEC | ALPHA | = 6.2281029 DEG. |

| | X | Y | Z | MAGNITUDE (KM) |
|---|---|---|---|---|
| DIRECTION COSINES TO TARGET | -0.85905194 | -0.35264266 | -0.37104303 | 60.56255770 |
| CAMERA AXIS | -0.83325326 | -0.44541445 | -0.32755911 | 60.23422241 |
| C1 | -0.99487758 | -0.06207462 | -0.07978316 | 60.14334136 |
| C2 | -0.67737580 | -0.19258817 | -0.70998015 | 77.78263855 |
| C3 | -0.47626053 | -0.72432023 | -0.49853396 | 79.88166809 |
| C4 | -0.79376222 | -0.59380671 | 0.13166289 | 61.37458801 |

| | X | Y | Z | X DOT | Y DOT | Z DOT |
|---|---|---|---|---|---|---|
| STATE VECTOR (1950.0) | -714.1587372 | -1562.9684906 | -520.8776627 | 1.6669394 | -0.3713106 | -0.8493500 |

LONG 20.8856 DEG
LATI 3.9168 DEG

LONG 20.4549 DEG
LATI 2.2520 DEG

(1) • 52.15669 KM • (2)

LOW RESOLUTION

36.87167 KM 47.85700 KM

(4) • 53.54766 KM • (3)

LONG 19.7442 DEG
LATI 4.3424 DEG

LONG 18.9599 DEG
LATI 2.7602 DEG

LONG 20.2624 DEG
LATI 3.7260 DEG

LONG 20.0110 DEG
LATI 3.0198 DEG

(1) • 22.73497 KM • (2)

HIGH RESOLUTION

5.15358 KM 5.77296 KM

(4) • 22.81002 KM • (3)

LONG 20.1025 DEG
LATI 3.7844 DEG

LONG 19.8312 DEG
LATI 3.0829 DEG

LOW RESOLUTION 41

| INDEX | LONGITUDE | LATITUDE |
|---|---|---|
| 1 | 20.8856435 | 3.9167531 |
| 2 | 20.8516827 | 3.7879477 |
| 3 | 20.8179350 | 3.6595427 |
| 4 | 20.7840528 | 3.5302037 |
| 5 | 20.7496729 | 3.3985527 |
| 6 | 20.7144215 | 3.2631143 |
| 7 | 20.6778796 | 3.1222374 |
| 8 | 20.6395659 | 2.9740095 |
| 9 | 20.5989146 | 2.8161364 |
| 10 | 20.5552237 | 2.6457847 |
| 11 | 20.5076129 | 2.4593308 |
| 12 | 20.4549289 | 2.2520089 |
| 13 | 20.3148413 | 2.3013861 |
| 14 | 20.1789110 | 2.3489481 |
| 15 | 20.0459354 | 2.3951424 |
| 16 | 19.9148092 | 2.4403745 |
| 17 | 19.7844849 | 2.4850140 |
| 18 | 19.6539459 | 2.5294111 |
| 19 | 19.5221665 | 2.5739098 |
| 20 | 19.3880837 | 2.6188576 |
| 21 | 19.2505527 | 2.6646172 |
| 22 | 19.1083109 | 2.7115765 |
| 23 | 18.9599268 | 2.7601682 |
| 24 | 19.0589583 | 2.9577724 |
| 25 | 19.1476705 | 3.1353240 |
| 26 | 19.2284381 | 3.2974215 |
| 27 | 19.3030519 | 3.4475456 |
| 28 | 19.3729076 | 3.5884208 |
| 29 | 19.4391210 | 3.7222430 |
| 30 | 19.5026178 | 3.8508418 |
| 31 | 19.5641894 | 3.9757941 |
| 32 | 19.6245413 | 4.0985070 |
| 33 | 19.6843226 | 4.2202927 |
| 34 | 19.7441580 | 4.3424190 |
| 35 | 19.8561347 | 4.3006414 |
| 36 | 19.9638288 | 4.2604653 |
| 37 | 20.0682573 | 4.2215110 |
| 38 | 20.1703322 | 4.1834387 |
| 39 | 20.2708786 | 4.1459392 |
| 40 | 20.3706837 | 4.1087216 |
| 41 | 20.4705021 | 4.0715013 |
| 42 | 20.5710979 | 4.0339959 |
| 43 | 20.6732497 | 3.9959150 |
| 44 | 20.7777956 | 3.9569471 |

HIGH RESOLUTION 41

| INDEX | LONGITUDE | LATITUDE |
|---|---|---|
| 1 | 20.2624185 | 3.7259646 |
| 2 | 20.2414811 | 3.6672071 |
| 3 | 20.2203336 | 3.6078442 |
| 4 | 20.1989212 | 3.5477377 |
| 5 | 20.1771970 | 3.4867338 |
| 6 | 20.1550999 | 3.4246773 |
| 7 | 20.1325719 | 3.3613999 |
| 8 | 20.1095486 | 3.2967197 |
| 9 | 20.0859630 | 3.2304403 |
| 10 | 20.0617354 | 3.1623502 |
| 11 | 20.0367854 | 3.0922136 |
| 12 | 20.0110199 | 3.0197717 |
| 13 | 19.9947140 | 3.0255150 |
| 14 | 19.9784055 | 3.0312558 |
| 15 | 19.9620955 | 3.0369923 |
| 16 | 19.9457817 | 3.0427288 |
| 17 | 19.9294600 | 3.0484645 |
| 18 | 19.9131279 | 3.0542001 |
| 19 | 19.8967843 | 3.0599366 |
| 20 | 19.8804262 | 3.0656757 |
| 21 | 19.8640523 | 3.0714156 |
| 22 | 19.8476577 | 3.0771607 |
| 23 | 19.8312435 | 3.0829091 |
| 24 | 19.8590956 | 3.1548763 |
| 25 | 19.8860569 | 3.2245528 |
| 26 | 19.9122279 | 3.2921921 |
| 27 | 19.9376957 | 3.3580309 |
| 28 | 19.9625480 | 3.4222807 |
| 29 | 19.9868565 | 3.4851347 |
| 30 | 20.0106912 | 3.5467737 |
| 31 | 20.0341206 | 3.6073652 |
| 32 | 20.0572014 | 3.6670653 |
| 33 | 20.0799928 | 3.7260235 |
| 34 | 20.1025493 | 3.7843806 |
| 35 | 20.1171374 | 3.7790543 |
| 36 | 20.1317098 | 3.7737324 |
| 37 | 20.1462653 | 3.7684168 |
| 38 | 20.1608090 | 3.7631038 |
| 39 | 20.1753409 | 3.7577950 |
| 40 | 20.1898651 | 3.7524879 |
| 41 | 20.2043827 | 3.7471834 |
| 42 | 20.2188935 | 3.7418790 |
| 43 | 20.2334020 | 3.7365753 |
| 44 | 20.2479100 | 3.7312708 |

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* PHOTO FRAME NUMBER 3 OF 4 *
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## FRAME 42

| | YEAR | MONTH | DAY | HOUR | MINUTE | SECOND |
|---|---|---|---|---|---|---|
| GMT | 67 | 2 | 16 | 6 | 51 | 25.300 |

| | | | | | |
|---|---|---|---|---|---|
| LONGITUDE OF NADIR POINT | = | 20.9067130 | DEG | LATITUDE OF NADIR POINT | = 3.7219152 DEG |
| LONG OF CAMERA AXIS INTERSECT | = | 20.6745565 | DEG | LATI OF CAMERA AXIS INTERSECT | = 3.2024878 DEG |
| SPACECRAFT RADIUS | = | 1794.6633606 | KM | SPACECRAFT ALTITUDE | = 56.5733643 KM |
| MEAN ALTITUDE RATE | = | -0.0881852 | KM/SEC | TIME FROM PERIAPSIS | = -172.6172028 SEC |
| HORIZONTAL VELOCITY | = | 1.9060543 | KM/SEC | TRUE ANOMALY | = 349.4359741 DEG |
| SCALE FACTOR (HIGH) | = | 0.0192992 | M/KM | TILT DISTANCE (HIGH) | = 185.7563190 MM |
| SCALE FACTOR (LOW) | = | 0.0013507 | M/KM | TILT DISTANCE (LOW) | = 24.3614845 MM |
| IMAGE MOTION COMPENSATION (V/H) | = | 0.0322044 | RAD/SEC | SWING ANGLE | = 3.8430654 DEG |
| EMISSION ANGLE | = | 17.5052423 | DEG | INCIDENCE ANGLE | = 79.6876440 DEG |
| PHASE ANGLE | = | 73.6646032 | DEG | NORTH DEVIATION ANGLE | = 338.7799759 DEG |
| TILT ANGLE | = | 16.9364655 | DEG | RESOLUTION CONSTANT | = 1.2852432 MTR |
| TILT AZIMUTH | = | 204.0504856 | DEG | SUN AZIMUTH AT PRINCIPAL GND PT | = 92.1039658 DEG |
| SUN ANGLE AT NADIR | = | 79.4756441 | DEG | SUN ARC AT NADIR | = 2410.9249573 KM |
| LONGITUDE DISTANCE TO TARGET | = | 0.6567130 | DEG | LATITUDE DISTANCE TO TARGET | = 0.3889152 DEG |
| LONGITUDE ARC LENGTH TO TARGET | = | 19.9216473 | KM | LATITUDE ARC LENGTH TO TARGET | = 11.7978940 KM |
| FORWARD OVERLAP RATIO | = | 52.2848668 | PCT | SIDE OVERLAP RATIO | = 0. PCT |
| TIME BETWEEN PHOTOS | = | 10.4001045 | SEC | ALPHA | = 5.5680445 DEG. |

| | X | Y | Z | MAGNITUDE (KM) |
|---|---|---|---|---|
| DIRECTION COSINES TO TARGET | -0.73572518 | -0.62858075 | -0.25217988 | 61.25757551 |
| CAMERA AXIS | -0.83326476 | -0.44539321 | -0.32755873 | 59.22779846 |
| C1 | -0.99487920 | -0.06204925 | -0.07978272 | 59.35217285 |
| C2 | -0.67738103 | -0.19257092 | -0.70997985 | 76.83364868 |
| C3 | -0.47627921 | -0.72430811 | -0.49853373 | 78.15026855 |
| C4 | -0.79377730 | -0.59378648 | 0.13166326 | 60.12495422 |

| | X | Y | Z | X DOT | Y DOT | Z DOT |
|---|---|---|---|---|---|---|
| STATE VECTOR (1950.0) | -696.7931306 | -1566.7584076 | -529.6868973 | 1.6731556 | -0.3575137 | -0.8447217 |

LONG 21.4891 DEG
LATI 3.6868 DEG

LONG 21.0634 DEG
LATI 2.0425 DEG

(1) • 51.51776 KM • (2)

LOW RESOLUTION

36.24156 KM 47.01904 KM

(4) • 52.39020 KM • (3)

LONG 20.3673 DEG
LATI 4.1048 DEG

LONG 19.6000 DEG
LATI 2.5569 DEG

LONG 20.8742 DEG
LATI 3.4996 DEG

LONG 20.6265 DEG
LATI 2.8050 DEG

(1) • 22.36720 KM • (2)

HIGH RESOLUTION

5.06691 KM 5.67403 KM

(4) • 22.41430 KM • (3)

LONG 20.7172 DEG
LATI 3.5574 DEG

LONG 20.4503 DEG
LATI 2.8682 DEG

LOW RESOLUTION 42

| INDEX | LONGITUDE | LATITUDE |
|---|---|---|
| 1 | 21.4891300 | 3.6868037 |
| 2 | 21.4555840 | 3.5597024 |
| 3 | 21.4222457 | 3.4329742 |
| 4 | 21.3887656 | 3.3053035 |
| 5 | 21.3547943 | 3.1753276 |
| 6 | 21.3199577 | 3.0415925 |
| 7 | 21.2838399 | 2.9024624 |
| 8 | 21.2459702 | 2.7560479 |
| 9 | 21.2057824 | 2.6000805 |
| 10 | 21.1625884 | 2.4317539 |
| 11 | 21.1155136 | 2.2474831 |
| 12 | 21.0634162 | 2.0425484 |
| 13 | 20.9250648 | 2.0928852 |
| 14 | 20.7910638 | 2.1412975 |
| 15 | 20.6602051 | 2.1882500 |
| 16 | 20.5313845 | 2.2341582 |
| 17 | 20.4035733 | 2.2793997 |
| 18 | 20.2757711 | 2.3243347 |
| 19 | 20.1469786 | 2.3693106 |
| 20 | 20.0161660 | 2.4146767 |
| 21 | 19.8822341 | 2.4607942 |
| 22 | 19.7439754 | 2.5080531 |
| 23 | 19.6000319 | 2.5568804 |
| 24 | 19.6967399 | 2.7499357 |
| 25 | 19.7834203 | 2.9234814 |
| 26 | 19.8623815 | 3.0819777 |
| 27 | 19.9353583 | 3.2288122 |
| 28 | 20.0037062 | 3.3666386 |
| 29 | 20.0685155 | 3.4975964 |
| 30 | 20.1306846 | 3.6234674 |
| 31 | 20.1909881 | 3.7457927 |
| 32 | 20.2501106 | 3.8659476 |
| 33 | 20.3086901 | 3.9852113 |
| 34 | 20.3673353 | 4.1048258 |
| 35 | 20.4766347 | 4.0640718 |
| 36 | 20.5819058 | 4.0248238 |
| 37 | 20.6841319 | 3.9867164 |
| 38 | 20.7841897 | 3.9494211 |
| 39 | 20.8828814 | 3.9126396 |
| 40 | 20.9809732 | 3.8760870 |
| 41 | 21.0792093 | 3.8394841 |
| 42 | 21.1783359 | 3.8025549 |
| 43 | 21.2791309 | 3.7650094 |
| 44 | 21.3824248 | 3.7265383 |

HIGH RESOLUTION 42

| INDEX | LONGITUDE | LATITUDE |
|---|---|---|
| 1 | 20.8742368 | 3.4996352 |
| 2 | 20.8536048 | 3.4418407 |
| 3 | 20.8327627 | 3.3834537 |
| 4 | 20.8116663 | 3.3243307 |
| 5 | 20.7902579 | 3.2643266 |
| 6 | 20.7684853 | 3.2032869 |
| 7 | 20.7462888 | 3.1410460 |
| 8 | 20.7236054 | 3.0774253 |
| 9 | 20.7003651 | 3.0122312 |
| 10 | 20.6764984 | 2.9452569 |
| 11 | 20.6519170 | 2.8762703 |
| 12 | 20.6265354 | 2.8050169 |
| 13 | 20.6105313 | 2.8107748 |
| 14 | 20.5945296 | 2.8165275 |
| 15 | 20.5785305 | 2.8222759 |
| 16 | 20.5625288 | 2.8280227 |
| 17 | 20.5465231 | 2.8337669 |
| 18 | 20.5305121 | 2.8395102 |
| 19 | 20.5144928 | 2.8452536 |
| 20 | 20.4984608 | 2.8509977 |
| 21 | 20.4824193 | 2.8567436 |
| 22 | 20.4663610 | 2.8624913 |
| 23 | 20.4502869 | 2.8682423 |
| 24 | 20.4776835 | 2.9389356 |
| 25 | 20.5042062 | 3.0073800 |
| 26 | 20.5299537 | 3.0738267 |
| 27 | 20.5550125 | 3.1385060 |
| 28 | 20.5794659 | 3.2016264 |
| 29 | 20.6033640 | 3.2633755 |
| 30 | 20.6268394 | 3.3239337 |
| 31 | 20.6498954 | 3.3834639 |
| 32 | 20.6726108 | 3.4421199 |
| 33 | 20.6950414 | 3.5000459 |
| 34 | 20.7172422 | 3.5573836 |
| 35 | 20.7315543 | 3.5521226 |
| 36 | 20.7458532 | 3.5468659 |
| 37 | 20.7601402 | 3.5416127 |
| 38 | 20.7744153 | 3.5363637 |
| 39 | 20.7886851 | 3.5311164 |
| 40 | 20.8029468 | 3.5258699 |
| 41 | 20.8172050 | 3.5206244 |
| 42 | 20.8314614 | 3.5153796 |
| 43 | 20.8457165 | 3.5101332 |
| 44 | 20.8599753 | 3.5048842 |

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* PHOTO FRAME NUMBER 4 OF 4 *
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## FRAME 43

| | YEAR | MONTH | DAY | HOUR | MINUTE | SECOND |
|---|---|---|---|---|---|---|
| GMT | 67 | 2 | 16 | 6 | 51 | 35.500 |

| | | | | | |
|---|---|---|---|---|---|
| LONGITUDE OF NADIR POINT | = | 21.4874814 | DEG | LATITUDE OF NADIR POINT | = | 3.529145 | DEG |
| LONG OF CAMERA AXIS INTERSECT | = | 21.2773345 | DEG | LATI OF CAMERA AXIS INTERSECT | = | 2.9847115 | DEG |
| SPACECRAFT RADIUS | = | 1793.7899323 | KM | SPACECRAFT ALTITUDE | = | 55.6599359 | KM |
| MEAN ALTITUDE RATE | = | -0.0830570 | KM/SEC | TIME FROM PERIAPSIS | = | -162.4218483 | SEC |
| HORIZONTAL VELOCITY | = | 1.9069807 | KM/SEC | TRUE ANOMALY | = | 350.0566940 | DEG |
| SCALE FACTOR (HIGH) | = | 0.0104625 | M/KM | TILT DISTANCE (HIGH) | = | 185.4538727 | MM |
| SCALE FACTOR (LOW) | = | 0.0013721 | M/KM | TILT DISTANCE (LOW) | = | 24.3218195 | MM |
| IMAGE MOTION COMPENSATION (V/H) | = | 0.0327185 | RAD/SEC | SWING ANGLE | = | 1.7116922 | DEG |
| EMISSION ANGLE | = | 17.4695325 | DEG | INCIDENCE ANGLE | = | 79.0767279 | DEG |
| PHASE ANGLE | = | 73.6646051 | DEG | NORTH DEVIATION ANGLE | = | 338.7185860 | DEG |
| TILT ANGLE | = | 16.9104645 | DEG | RESOLUTION CONSTANT | = | 1.2651902 | MTR |
| TILT AZIMUTH | = | 202.0480709 | DEG | SUN AZIMUTH AT PRINCIPAL GND PT | = | 92.0999222 | DEG |
| SUN ANGLE AT NADIR | = | 78.8865690 | DEG | SUN ARC AT NADIR | = | 2393.0551147 | KM |
| LONGITUDE DISTANCE TO TARGET | = | 1.2374814 | DEG | LATITUDE DISTANCE TO TARGET | = | 0.1699145 | DEG |
| LONGITUDE ARC LENGTH TO TARGET | = | 37.5394835 | KM | LATITUDE ARC LENGTH TO TARGET | = | 5.1544245 | KM |
| FORWARD OVERLAP RATIO | = | 52.3896542 | PCT | SIDE OVERLAP RATIO | = | 0. | PCT |
| TIME BETWEEN PHOTOS | = | 10.1999044 | SEC | ALPHA | = | 4.9197438 | DEG. |

| | X | Y | Z | MAGNITUDE (KM) |
|---|---|---|---|---|
| DIRECTION COSINES TO TARGET | -0.56297993 | -0.81675861 | -0.12632889 | 67.66858292 |
| CAMERA AXIS | -0.83327607 | -0.44537231 | -0.32755837 | 58.30369568 |
| C1 | -0.99488079 | -0.06202430 | -0.07978229 | 58.63389587 |
| C2 | -0.67738616 | -0.19255393 | -0.70997956 | 75.97735596 |
| C3 | -0.47629759 | -0.72429617 | -0.49853352 | 76.55335999 |
| C4 | -0.79379215 | -0.59376656 | 0.13166360 | 58.97215271 |

| | X | Y | Z | X DOT | Y DOT | Z DOT |
|---|---|---|---|---|---|---|
| STATE VECTOR (1950.0) | -679.6917343 | -1570.3361664 | -538.2804184 | 1.6791128 | -0.3439283 | -0.8401000 |

LONG 22.0814 DEG
LATI 3.4608 DEG

(1) • 50.94110 KM

LONG 21.6603 DEG
LATI 1.8350 DEG

(2) •

LOW RESOLUTION

35.66808 KM

46.26156 KM

(4) • 51.32277 KM

(3) •

LONG 20.9775 DEG
LATI 3.8718 DEG

LONG 20.2258 DEG
LATI 2.3555 DEG

LONG 21.4740 DEG
LATI 3.2770 DEG

(1) • 22.02999 KM

LONG 21.2297 DEG
LATI 2.5930 DEG

(2) •

HIGH RESOLUTION

4.98619 KM

5.58414 KM

(4) • 22.05061 KM

(3) •

LONG 21.3196 DEG
LATI 3.3341 DEG

LONG 21.0567 DEG
LATI 2.0563 DEG

LOW RESOLUTION 43

| INDEX | LONGITUDE | LATITUDE |
|---|---|---|
| 1 | 22.0813987 | 3.4608158 |
| 2 | 22.0482352 | 3.3352599 |
| 3 | 22.0152693 | 3.2100506 |
| 4 | 21.9821644 | 3.0838893 |
| 5 | 21.9485679 | 2.9554305 |
| 6 | 21.9141102 | 2.8232322 |
| 7 | 21.8783846 | 2.6856799 |
| 8 | 21.8409181 | 2.5409012 |
| 9 | 21.8011580 | 2.3866508 |
| 10 | 21.7584181 | 2.2201444 |
| 11 | 21.7118320 | 2.0378321 |
| 12 | 21.6602705 | 1.8350336 |
| 13 | 21.5234702 | 1.8863368 |
| 14 | 21.3912072 | 1.9356030 |
| 15 | 21.2622671 | 1.9833136 |
| 16 | 21.1355517 | 2.0298972 |
| 17 | 21.0100403 | 2.0757397 |
| 18 | 20.8847489 | 2.1212074 |
| 19 | 20.7587004 | 2.1666538 |
| 20 | 20.6308942 | 2.2124297 |
| 21 | 20.5002723 | 2.2588989 |
| 22 | 20.3656788 | 2.3064490 |
| 23 | 20.2258196 | 2.3555000 |
| 24 | 20.3203847 | 2.5443684 |
| 25 | 20.4051957 | 2.7142198 |
| 26 | 20.4824872 | 2.8693949 |
| 27 | 20.5539534 | 3.0131985 |
| 28 | 20.6209116 | 3.1482126 |
| 29 | 20.6844225 | 3.2765279 |
| 30 | 20.7453642 | 3.3998846 |
| 31 | 20.8044937 | 3.5197885 |
| 32 | 20.8624830 | 3.6375819 |
| 33 | 20.9199505 | 3.7545208 |
| 34 | 20.9774981 | 3.8718199 |
| 35 | 21.0843375 | 3.8320127 |
| 36 | 21.1873910 | 3.7936210 |
| 37 | 21.2875972 | 3.7562949 |
| 38 | 21.3858101 | 3.7197184 |
| 39 | 21.4828093 | 3.6835969 |
| 40 | 21.5793438 | 3.6476556 |
| 41 | 21.6761417 | 3.6116204 |
| 42 | 21.7739439 | 3.5752164 |
| 43 | 21.8735209 | 3.5381592 |
| 44 | 21.9757011 | 3.5001381 |

HIGH RESOLUTION 43

| INDEX | LONGITUDE | LATITUDE |
|---|---|---|
| 1 | 21.4740171 | 3.2769855 |
| 2 | 21.4536655 | 3.2200747 |
| 3 | 21.4331098 | 3.1625799 |
| 4 | 21.4122994 | 3.1043593 |
| 5 | 21.3911853 | 3.0452731 |
| 6 | 21.3697093 | 2.9851657 |
| 7 | 21.3478184 | 2.9238733 |
| 8 | 21.3254464 | 2.8612234 |
| 9 | 21.3025262 | 2.7970256 |
| 10 | 21.2789876 | 2.7310733 |
| 11 | 21.2547469 | 2.6631402 |
| 12 | 21.2297187 | 2.5929754 |
| 13 | 21.2139900 | 2.5987486 |
| 14 | 21.1982687 | 2.6045159 |
| 15 | 21.1825514 | 2.6102788 |
| 16 | 21.1668360 | 2.6160384 |
| 17 | 21.1511221 | 2.6217945 |
| 18 | 21.1354029 | 2.6275490 |
| 19 | 21.1196821 | 2.6333017 |
| 20 | 21.1039519 | 2.6390544 |
| 21 | 21.0882115 | 2.6448071 |
| 22 | 21.0724628 | 2.6505616 |
| 23 | 21.0566969 | 2.6563169 |
| 24 | 21.0836763 | 2.7258396 |
| 25 | 21.1097960 | 2.7931529 |
| 26 | 21.1351526 | 2.8585050 |
| 27 | 21.1598332 | 2.9221188 |
| 28 | 21.1839175 | 2.9842018 |
| 29 | 21.2074800 | 3.0449376 |
| 30 | 21.2305844 | 3.1045019 |
| 31 | 21.2532961 | 3.1630554 |
| 32 | 21.2756734 | 3.2207509 |
| 33 | 21.2977726 | 3.2777309 |
| 34 | 21.3196449 | 3.3341303 |
| 35 | 21.3337064 | 3.3289291 |
| 36 | 21.3477545 | 3.3237314 |
| 37 | 21.3617961 | 3.3185361 |
| 38 | 21.3758285 | 3.3133435 |
| 39 | 21.3898554 | 3.3081517 |
| 40 | 21.4038794 | 3.3029608 |
| 41 | 21.4179020 | 3.2977690 |
| 42 | 21.4319260 | 3.2925763 |
| 43 | 21.4459510 | 3.2873819 |
| 44 | 21.4599810 | 3.2821850 |

**********
* PHOTO FRAME NUMBER 1 OF 8 *
**********

## FRAME 44

| | YEAR | MONTH | DAY | HOUR | MINUTE | SECOND |
|---|---|---|---|---|---|---|
| GMT | 67 | 2 | 16 | 13 | 22 | 18.099 |

| | | | | | |
|---|---|---|---|---|---|
| LONGITUDE OF NADIR POINT | = | 27.0118618 | DEG | LATITUDE OF NADIR POINT | = 0.6497192 DEG |
| LONG OF CAMERA AXIS INTERSECT | = | 27.0354960 | DEG | LATI OF CAMERA AXIS INTERSECT | = 0.7597151 DEG |
| SPACECRAFT RADIUS | = | 1786.8432465 | KM | SPACECRAFT ALTITUDE | = 48.7532501 KM |
| MEAN ALTITUDE RATE | = | -0.0168560 | KM/SEC | TIME FROM PERIAPSIS | = -32.6971397 SEC |
| HORIZONTAL VELOCITY | = | 1.9142338 | KM/SEC | TRUE ANOMALY | = 357.9925957 DEG |
| SCALE FACTOR (HIGH) | = | 0.0124806 | M/KM | TILT DISTANCE (HIGH) | = 42.6997442 MM |
| SCALE FACTOR (LOW) | = | 0.0016368 | M/KM | TILT DISTANCE (LOW) | = 5.5999665 MM |
| IMAGE MOTION COMPENSATION (V/H) | = | 0.0391666 | RAD/SEC | SWING ANGLE | = 171.0614758 DEG |
| EMISSION ANGLE | = | 4.1166583 | DEG | INCIDENCE ANGLE | = 71.4682484 DEG |
| PHASE ANGLE | = | 72.2512751 | DEG | NORTH DEVIATION ANGLE | = 338.9051018 DEG |
| TILT ANGLE | = | 4.0041491 | DEG | RESOLUTION CONSTANT | = 1.0606074 MTR |
| TILT AZIMUTH | = | 12.1257311 | DEG | SUN AZIMUTH AT PRINCIPAL GND PT | = 91.8286476 DEG |
| SUN ANGLE AT NADIR | = | 71.4883957 | DEG | SUN ARC AT NADIR | = 2168.6286011 KM |
| LONGITUDE DISTANCE TO TARGET | = | -0.4381382 | DEG | LATITUDE DISTANCE TO TARGET | = 0.0327192 DEG |
| LONGITUDE ARC LENGTH TO TARGET | = | -13.2910960 | KM | LATITUDE ARC LENGTH TO TARGET | = 0.9925490 KM |
| FORWARD OVERLAP RATIO | = | 0. | PCT | SIDE OVERLAP RATIO | = 0. PCT |
| TIME BETWEEN PHOTOS | = | 0. | SEC | ALPHA | = -0.8306908 DEG. |

| | X | Y | Z | MAGNITUDE (KM) |
|---|---|---|---|---|
| DIRECTION COSINES TO TARGET | -0.97850189 | -0.20396329 | -0.03054551 | 50.59127855 |
| CAMERA AXIS | -0.89603221 | -0.44032094 | 0.05695403 | 48.87591553 |
| C1 | -0.91973301 | -0.33504505 | 0.20453857 | 50.34880066 |
| C2 | -0.88054971 | -0.45733098 | -0.12442094 | 49.07882690 |
| C3 | -0.84238071 | -0.53087869 | -0.09253423 | 49.12780762 |
| C4 | -0.88156398 | -0.40859275 | 0.23642528 | 50.40040588 |

| | X | Y | Z | X DOT | Y DOT | Z DOT |
|---|---|---|---|---|---|---|
| STATE VECTOR (1950.0) | -456.5131264 | -1603.0383453 | -643.9508286 | 1.7426507 | -0.1662998 | -0.7746538 |

LONG 27.8106 DEG
LATI 1.1862 DEG

LONG 27.3085 DEG
LATI -0.0291 DEG

(1) • 39.88596 KM • (2)

LOW RESOLUTION

34.73325 KM 32.76617 KM

(4) • 40.19855 KM • (3)

LONG 26.7440 DEG
LATI 1.0033 DEG

LONG 26.2989 DEG
LATI -0.3550 DEG

LONG 27.2098 DEG
LATI 1.0075 DEG

LONG 26.9997 DEG
LATI 0.4666 DEG

(1) • 17.60008 KM • (2)

HIGH RESOLUTION

4.47285 KM 4.35995 KM

(4) • 17.61798 KM • (3)

LONG 27.0723 DEG
LATI 1.0608 DEG

LONG 26.8655 DEG
LATI 0.5181 DEG

LOW RESOLUTION 44

| INDEX | LONGITUDE | LATITUDE |
|---|---|---|
| 1 | 27.8106127 | 1.1861639 |
| 2 | 27.7580976 | 1.0603604 |
| 3 | 27.7087307 | 0.9418242 |
| 4 | 27.6617625 | 0.8288033 |
| 5 | 27.6165676 | 0.7198225 |
| 6 | 27.5726025 | 0.6135934 |
| 7 | 27.5293787 | 0.5089524 |
| 8 | 27.4864421 | 0.4048014 |
| 9 | 27.4433470 | 0.3000681 |
| 10 | 27.3996472 | 0.1936521 |
| 11 | 27.3548622 | 0.0843793 |
| 12 | 27.3084691 | -0.0290513 |
| 13 | 27.2120686 | 0.0079473 |
| 14 | 27.1188209 | 0.0436722 |
| 15 | 27.0278935 | 0.0784439 |
| 16 | 26.9385407 | 0.1125572 |
| 17 | 26.8500566 | 0.1462796 |
| 18 | 26.7617700 | 0.1798713 |
| 19 | 26.6730111 | 0.2135851 |
| 20 | 26.5830977 | 0.2476772 |
| 21 | 26.4913116 | 0.2824189 |
| 22 | 26.3968742 | 0.3181015 |
| 23 | 26.2989135 | 0.3550443 |
| 24 | 26.3408139 | 0.4711780 |
| 25 | 26.3811061 | 0.5831282 |
| 26 | 26.4202805 | 0.6922192 |
| 27 | 26.4587691 | 0.7996504 |
| 28 | 26.4969838 | 0.9065471 |
| 29 | 26.5353136 | 1.0140150 |
| 30 | 26.5741639 | 1.1231819 |
| 31 | 26.6139545 | 1.2352508 |
| 32 | 26.6551504 | 1.3515518 |
| 33 | 26.6982820 | 1.4736150 |
| 34 | 26.7439749 | 1.6032631 |
| 35 | 26.8472667 | 1.5623554 |
| 36 | 26.9468746 | 1.5230118 |
| 37 | 27.0437157 | 1.4848583 |
| 38 | 27.1386170 | 1.4475646 |
| 39 | 27.2323365 | 1.4108276 |
| 40 | 27.3255975 | 1.3743595 |
| 41 | 27.4191117 | 1.3378846 |
| 42 | 27.5135915 | 1.3011254 |
| 43 | 27.6097858 | 1.2637924 |
| 44 | 27.7084978 | 1.2255835 |

HIGH RESOLUTION 44

| INDEX | LONGITUDE | LATITUDE |
|---|---|---|
| 1 | 27.2097719 | 1.0074606 |
| 2 | 27.1898870 | 0.9562999 |
| 3 | 27.1702943 | 0.9058829 |
| 4 | 27.1509454 | 0.8560882 |
| 5 | 27.1317940 | 0.8067973 |
| 6 | 27.1127975 | 0.7578966 |
| 7 | 27.0939124 | 0.7092750 |
| 8 | 27.0750952 | 0.6608259 |
| 9 | 27.0563061 | 0.6124434 |
| 10 | 27.0375040 | 0.5640225 |
| 11 | 27.0186486 | 0.5154547 |
| 12 | 26.9996958 | 0.4666377 |
| 13 | 26.9874954 | 0.4713163 |
| 14 | 26.9752986 | 0.4759925 |
| 15 | 26.9631062 | 0.4806669 |
| 16 | 26.9509144 | 0.4853413 |
| 17 | 26.9387245 | 0.4900140 |
| 18 | 26.9265316 | 0.4946867 |
| 19 | 26.9143364 | 0.4993611 |
| 20 | 26.9021358 | 0.5040364 |
| 21 | 26.8899293 | 0.5087133 |
| 22 | 26.8777130 | 0.5133946 |
| 23 | 26.8654873 | 0.5180792 |
| 24 | 26.8841646 | 0.5670585 |
| 25 | 26.9027412 | 0.6157876 |
| 26 | 26.9212625 | 0.6643725 |
| 27 | 26.9397683 | 0.7129215 |
| 28 | 26.9582944 | 0.7615379 |
| 29 | 26.9768858 | 0.8103294 |
| 30 | 26.9955838 | 0.8594026 |
| 31 | 27.0144265 | 0.9088702 |
| 32 | 27.0334618 | 0.9588450 |
| 33 | 27.0527334 | 1.0094447 |
| 34 | 27.0722871 | 1.0607958 |
| 35 | 27.0848105 | 1.0559344 |
| 36 | 27.0973227 | 1.0510773 |
| 37 | 27.1098266 | 1.0462236 |
| 38 | 27.1223235 | 1.0413742 |
| 39 | 27.1348169 | 1.0365273 |
| 40 | 27.1473062 | 1.0316821 |
| 41 | 27.1597946 | 1.0268378 |
| 42 | 27.1722832 | 1.0219944 |
| 43 | 27.1847754 | 1.0171500 |
| 44 | 27.1972718 | 1.0123074 |

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* PHOTO FRAME NUMBER 2 OF 8 *
**********

## FRAME 45

| | YEAR | MONTH | DAY | HOUR | MINUTE | SECOND |
|---|---|---|---|---|---|---|
| GMT | 67 | 2 | 16 | 10 | 22 | 25.299 |

| | | | | | |
|---|---|---|---|---|---|
| LONGITUDE OF NADIR POINT | = | 27.1376333 | DEG | LATITUDE OF NADIR POINT | = | 0.6014226 | DEG |
| LONG OF CAMERA AXIS INTERSECT | = | 27.1647385 | DEG | LATI OF CAMERA AXIS INTERSECT | = | 0.7093852 | DEG |
| SPACECRAFT RADIUS | = | 1786.[illegible]74188 | KM | SPACECRAFT ALTITUDE | = | 48.7174225 | KM |
| MEAN ALTITUDE RATE | = | -0.[illegible]157229 | KM/SEC | TIME FROM PERIAPSIS | = | -30.4979866 | SEC |
| HORIZONTAL VELOCITY | = | 1.9142718 | KM/SEC | TRUE ANOMALY | = | 358.1275854 | DEG |
| SCALE FACTOR (HIGH) | = | 0.0124900 | M/KM | TILT DISTANCE (HIGH) | = | 42.5020328 | MM |
| SCALE FACTOR (LOW) | = | 0.[illegible]16380 | M/KM | TILT DISTANCE (LOW) | = | 5.5740371 | MM |
| IMAGE MOTION COMPENSATION (V/H) | = | 0.[illegible]91970 | RAD/SEC | SWING ANGLE | = | 172.9813560 | DEG |
| EMISSION ANGLE | = | 4.0975733 | DEG | INCIDENCE ANGLE | = | 71.3371363 | DEG |
| PHASE ANGLE | = | 72.2512760 | DEG | NORTH DEVIATION ANGLE | = | 338.9042435 | DEG |
| TILT ANGLE | = | 3.9856687 | DEG | RESOLUTION CONSTANT | = | 1.0598031 | MIR |
| TILT AZIMUTH | = | 14.0422463 | DEG | SUN AZIMUTH AT PRINCIPAL GND PT | = | 91.8143691 | DEG |
| SUN ANGLE AT NADIR | = | 71.3608723 | DEG | SUN ARC AT NADIR | = | 2164.7601624 | KM |
| LONGITUDE DISTANCE TO TARGET | = | -0.3123667 | DEG | LATITUDE DISTANCE TO TARGET | = | -0.0155779 | DEG |
| LONGITUDE ARC LENGTH TO TARGET | = | -9.4757674 | KM | LATITUDE ARC LENGTH TO TARGET | = | -0.4725632 | KM |
| FORWARD OVERLAP RATIO | = | 4.7978129 | PCT | SIDE OVERLAP RATIO | = | 0. | PCT |
| TIME BETWEEN PHOTOS | = | 2.1999478 | SEC | ALPHA | = | -0.9610109 | DEG. |

| | X | Y | Z | MAGNITUDE (KM) |
|---|---|---|---|---|
| DIRECTION COSINES TO TARGET | -0.96059622 | -0.27794656 | -0.00078196 | 49.65791178 |
| CAMERA AXIS | -0.89603462 | -0.44031600 | 0.05695412 | 48.83885193 |
| C1 | -0.91973483 | -0.33503998 | 0.20453865 | 50.31623840 |
| C2 | -0.88055225 | -0.45732614 | -0.12442086 | 49.04689326 |
| C3 | -0.84238363 | -0.53087405 | -0.09253415 | 49.08520508 |
| C4 | -0.88156620 | -0.40858790 | 0.23642536 | 50.35658264 |

| | X | Y | Z | X DOT | Y DOT | Z DOT |
|---|---|---|---|---|---|---|
| STATE VECTOR (1950.0) | -452.6783524 | -1603.4038636 | -645.6537247 | 1.7435095 | -0.1632678 | -0.7734356 |

LONG 27.9400 DEG
LATI 1.1365 DEG

LONG 27.4378 DEG
LATI -0.0787 DEG

(1) * 39.88929 KM * (2)

LOW RESOLUTION

34.70556 KM 32.74014 KM

(4) * 40.13379 KM * (3)

LONG 26.8738 DEG
LATI 1.5521 DEG

LONG 26.4294 DEG
LATI 0.3359 DEG

LONG 27.3390 DEG
LATI 0.9576 DEG

LONG 27.1290 DEG
LATI 0.4171 DEG

(1) * 17.58868 KM * (2)

HIGH RESOLUTION

4.46934 KM 4.35653 KM

(4) * 17.63267 KM * (3)

LONG 27.2016 DEG
LATI 1.0108 DEG

LONG 26.9949 DEG
LATI 0.4685 DEG

LOW RESOLUTION 45

| INDEX | LONGITUDE | LATITUDE |
|---|---|---|
| 1 | 27.9490222 | 1.1365460 |
| 2 | 27.8874927 | 1.0107280 |
| 3 | 27.8381126 | 0.8921806 |
| 4 | 27.7911334 | 0.7791504 |
| 5 | 27.7459278 | 0.6701611 |
| 6 | 27.7019548 | 0.5639243 |
| 7 | 27.6587222 | 0.4592773 |
| 8 | 27.6157796 | 0.3551212 |
| 9 | 27.5726795 | 0.2503828 |
| 10 | 27.5289748 | 0.1439625 |
| 11 | 27.4841840 | 0.0346854 |
| 12 | 27.4377875 | -0.0787487 |
| 13 | 27.3413491 | -0.0416462 |
| 14 | 27.2480948 | -0.0058316 |
| 15 | 27.1571889 | 0.0290198 |
| 16 | 27.0678811 | 0.0631989 |
| 17 | 26.9794688 | 0.0969784 |
| 18 | 26.8912792 | 0.1306154 |
| 19 | 26.8026438 | 0.1643659 |
| 20 | 26.7128835 | 0.1984870 |
| 21 | 26.6212792 | 0.2332467 |
| 22 | 26.5270581 | 0.2689370 |
| 23 | 26.4293549 | 0.3058764 |
| 24 | 26.4711914 | 0.4218274 |
| 25 | 26.5114257 | 0.5335983 |
| 26 | 26.5505402 | 0.6425150 |
| 27 | 26.5889738 | 0.7497738 |
| 28 | 26.6271312 | 0.8564989 |
| 29 | 26.6654065 | 0.9637926 |
| 30 | 26.7042003 | 1.0727811 |
| 31 | 26.7439337 | 1.1846647 |
| 32 | 26.7850716 | 1.3007702 |
| 33 | 26.8281400 | 1.4226302 |
| 34 | 26.8737662 | 1.5520571 |
| 35 | 26.9768562 | 1.5113689 |
| 36 | 27.0763042 | 1.4722225 |
| 37 | 27.1730218 | 1.4342483 |
| 38 | 27.2678282 | 1.3971194 |
| 39 | 27.3614874 | 1.3605310 |
| 40 | 27.4547160 | 1.3242012 |
| 41 | 27.5482228 | 1.2878543 |
| 42 | 27.6427295 | 1.2512112 |
| 43 | 27.7389798 | 1.2139867 |
| 44 | 27.8377800 | 1.1758768 |

HIGH RESOLUTION 45

| INDEX | LONGITUDE | LATITUDE |
|---|---|---|
| 1 | 27.3389602 | 0.9575729 |
| 2 | 27.3190866 | 0.9064446 |
| 3 | 27.2995052 | 0.8560617 |
| 4 | 27.2801673 | 0.8062995 |
| 5 | 27.2610269 | 0.7570411 |
| 6 | 27.2420425 | 0.7081728 |
| 7 | 27.2231669 | 0.6595837 |
| 8 | 27.2043617 | 0.6111670 |
| 9 | 27.1855843 | 0.5628153 |
| 10 | 27.1667938 | 0.5144251 |
| 11 | 27.1479480 | 0.4658915 |
| 12 | 27.1290083 | 0.4171051 |
| 13 | 27.1168160 | 0.4217855 |
| 14 | 27.1046288 | 0.4264625 |
| 15 | 27.0924456 | 0.4311378 |
| 16 | 27.0802631 | 0.4358105 |
| 17 | 27.0680838 | 0.4404840 |
| 18 | 27.0559027 | 0.4451567 |
| 19 | 27.0437183 | 0.4498303 |
| 20 | 27.0315309 | 0.4545055 |
| 21 | 27.0193362 | 0.4591834 |
| 22 | 27.0071318 | 0.4638620 |
| 23 | 26.9949219 | 0.4685458 |
| 24 | 27.0135810 | 0.5174824 |
| 25 | 27.0321438 | 0.5661689 |
| 26 | 27.0506508 | 0.6147110 |
| 27 | 27.0691400 | 0.6632173 |
| 28 | 27.0876520 | 0.7117911 |
| 29 | 27.1062288 | 0.7605398 |
| 30 | 27.1249113 | 0.8095704 |
| 31 | 27.1437411 | 0.8589945 |
| 32 | 27.1627607 | 0.9089240 |
| 33 | 27.1820164 | 0.9594793 |
| 34 | 27.2015550 | 1.0107852 |
| 35 | 27.2140675 | 1.0059349 |
| 36 | 27.2265701 | 1.0010897 |
| 37 | 27.2390656 | 0.9962488 |
| 38 | 27.2515552 | 0.9914105 |
| 39 | 27.2640405 | 0.9865747 |
| 40 | 27.2765236 | 0.9817406 |
| 41 | 27.2890048 | 0.9769074 |
| 42 | 27.3014894 | 0.9720751 |
| 43 | 27.3139741 | 0.9672427 |
| 44 | 27.3264647 | 0.9624078 |

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* PHOTO FRAME NUMBER 3 OF 8 *
********** **FRAME 46**

| | YEAR | MONTH | DAY | HOUR | MINUTE | SECOND |
|---|---|---|---|---|---|---|
| GMT | 67 | 2 | 16 | 10 | 22 | 22.500 |

| | | | | | |
|---|---|---|---|---|---|
| LONGITUDE OF NADIR POINT | = | 27.2634783 | DEG | LATITUDE OF NADIR POINT | = 3.5530976 DEG |
| LONG OF CAMERA AXIS INTERSECT | = | 27.2941499 | DEG | LATI OF CAMERA AXIS INTERSECT | = 3.6602257 DEG |
| SPACECRAFT RADIUS | = | 1786.7740631 | KM | SPACECRAFT ALTITUDE | = 48.6840668 KM |
| MEAN ALTITUDE RATE | = | -0.0145892 | KM/SEC | TIME FROM PERIAPSIS | = -28.2978060 SEC |
| HORIZONTAL VELOCITY | = | 1.9143073 | KM/SEC | TRUE ANOMALY | = 358.2626419 DEG |
| SCALE FACTOR (HIGH) | = | 0.0124988 | M/KM | TILT DISTANCE (HIGH) | = 42.3521633 MM |
| SCALE FACTOR (LOW) | = | 0.0016392 | M/KM | TILT DISTANCE (LOW) | = 5.5543821 MM |
| IMAGE MOTION COMPENSATION (V/H) | = | 0.0392259 | RAD/SEC | SWING ANGLE | = 174.9177399 DEG |
| EMISSION ANGLE | = | 4.0830962 | DEG | INCIDENCE ANGLE | = 71.2359736 DEG |
| PHASE ANGLE | = | 72.2512763 | DEG | NORTH DEVIATION ANGLE | = 338.9036179 DEG |
| TILT ANGLE | = | 3.9716596 | DEG | RESOLUTION CONSTANT | = 1.0590591 MTR |
| TILT AZIMUTH | = | 15.9753289 | DEG | SUN AZIMUTH AT PRINCIPAL GND PT | = 91.6015454 DEG |
| SUN ANGLE AT NADIR | = | 71.2332945 | DEG | SUN ARC AT NADIR | = 2160.8900146 KM |
| LONGITUDE DISTANCE TO TARGET | = | -0.1865218 | DEG | LATITUDE DISTANCE TO TARGET | = -0.0639024 DEG |
| LONGITUDE ARC LENGTH TO TARGET | = | -5.6582112 | KM | LATITUDE ARC LENGTH TO TARGET | = -1.9385242 KM |
| FORWARD OVERLAP RATIO | = | 4.6746569 | PCT | SIDE OVERLAP RATIO | = 0. PCT |
| TIME BETWEEN PHOTOS | = | 2.2002697 | SEC | ALPHA | = -1.0913767 DEG. |

| | X | Y | Z | MAGNITUDE (KM) |
|---|---|---|---|---|
| DIRECTION COSINES TO TARGET | -0.93549568 | -0.35230716 | 0.02993124 | 49.06023216 |
| CAMERA AXIS | -0.89603698 | -0.44031121 | 0.05695420 | 48.80456543 |
| C1 | -0.91973660 | -0.33503506 | 0.20453873 | 50.28649902 |
| C2 | -0.88055471 | -0.45732142 | -0.12442078 | 49.01771545 |
| C3 | -0.84238648 | -0.53086954 | -0.09253407 | 49.04537964 |
| C4 | -0.98156837 | -0.40858318 | 0.23642543 | 50.31562805 |

| | X | Y | Z | X DOT | Y DOT | Z DOT |
|---|---|---|---|---|---|---|
| STATE VECTOR (1950.0) | -448.9399429 | -1633.7568817 | -647.3547134 | 1.7443615 | -0.1602335 | -0.7722136 |

LONG 28.0695 DEG
LATI 1.0869 DEG

LONG 27.5672 DEG
LATI -0.1285 DEG

• 39.89490 KM •
(1) (2)

LOW RESOLUTION

34.68015 KM 32.71622 KM

(4) (3)
• 43.37143 KM •

LONG 27.0336 DEG
LATI 1.5009 DEG

LONG 26.5998 DEG
LATI -0.2567 DEG

LONG 27.4682 DEG
LATI 0.9077 DEG

LONG 27.2584 DEG
LATI 0.3675 DEG

• 17.57826 KM •
(1) (2)

HIGH RESOLUTION

4.46611 KM 4.35339 KM

(4) (3)
• 17.58837 KM •

LONG 27.3309 DEG
LATI 0.9609 DEG

LONG 27.1244 DEG
LATI 0.4190 DEG

LOW RESOLUTION 46

| INDEX | LONGITUDE | LATITUDE |
|---|---|---|
| 1 | 28.0695484 | 1.0869341 |
| 2 | 28.0170007 | 0.9610955 |
| 3 | 27.9676049 | 0.8425294 |
| 4 | 27.9206126 | 0.7294838 |
| 5 | 27.8753941 | 0.6204791 |
| 6 | 27.8314111 | 0.5142287 |
| 7 | 27.7881694 | 0.4095680 |
| 8 | 27.7452157 | 0.3054008 |
| 9 | 27.7021084 | 0.2006522 |
| 10 | 27.6583941 | 0.0942208 |
| 11 | 27.6135983 | -0.0150682 |
| 12 | 27.5671949 | -0.1285100 |
| 13 | 27.4707134 | -0.0913017 |
| 14 | 27.3774445 | -0.0553954 |
| 15 | 27.2865536 | -0.0204649 |
| 16 | 27.1972873 | 0.0137834 |
| 17 | 27.1089416 | 0.0476218 |
| 18 | 27.0208435 | 0.0813074 |
| 19 | 26.9323261 | 0.1150972 |
| 20 | 26.8427119 | 0.1492465 |
| 21 | 26.7512853 | 0.1840275 |
| 22 | 26.6572750 | 0.2197272 |
| 23 | 26.5598183 | 0.2566648 |
| 24 | 26.6015959 | 0.3724391 |
| 25 | 26.6417706 | 0.4840401 |
| 26 | 26.6808293 | 0.5927895 |
| 27 | 26.7192094 | 0.6998818 |
| 28 | 26.7573133 | 0.8064404 |
| 29 | 26.7955344 | 0.9135651 |
| 30 | 26.8342741 | 1.0223820 |
| 31 | 26.8739526 | 1.1340871 |
| 32 | 26.9150319 | 1.2500074 |
| 33 | 26.9580412 | 1.3716684 |
| 34 | 27.0036061 | 1.5008837 |
| 35 | 27.1064999 | 1.4604097 |
| 36 | 27.2057931 | 1.4214580 |
| 37 | 27.3023913 | 1.3836614 |
| 38 | 27.3971136 | 1.3466921 |
| 39 | 27.4907157 | 1.3102531 |
| 40 | 27.5839174 | 1.2740599 |
| 41 | 27.6774273 | 1.2378369 |
| 42 | 27.7719636 | 1.2013090 |
| 43 | 27.8682766 | 1.1641912 |
| 44 | 27.9671736 | 1.1261769 |

HIGH RESOLUTION 46

| INDEX | LONGITUDE | LATITUDE |
|---|---|---|
| 1 | 27.4682286 | 0.9076792 |
| 2 | 27.4483654 | 0.8565817 |
| 3 | 27.4287930 | 0.8062287 |
| 4 | 27.4094651 | 0.7564981 |
| 5 | 27.3903356 | 0.7072686 |
| 6 | 27.3713596 | 0.6584294 |
| 7 | 27.3524964 | 0.6098693 |
| 8 | 27.3337004 | 0.5614817 |
| 9 | 27.3149328 | 0.5131598 |
| 10 | 27.2961519 | 0.4647995 |
| 11 | 27.2773180 | 0.4162940 |
| 12 | 27.2583878 | 0.3675376 |
| 13 | 27.2462025 | 0.3722180 |
| 14 | 27.2340245 | 0.3768958 |
| 15 | 27.2218497 | 0.3815719 |
| 16 | 27.2096782 | 0.3862463 |
| 17 | 27.1975081 | 0.3909199 |
| 18 | 27.1853366 | 0.3955934 |
| 19 | 27.1731629 | 0.4002670 |
| 20 | 27.1609862 | 0.4049414 |
| 21 | 27.1488020 | 0.4096175 |
| 22 | 27.1366124 | 0.4142962 |
| 23 | 27.1244142 | 0.4189783 |
| 24 | 27.1430604 | 0.4678756 |
| 25 | 27.1616087 | 0.5165219 |
| 26 | 27.1800992 | 0.5650257 |
| 27 | 27.1985753 | 0.6134910 |
| 28 | 27.2170742 | 0.6620255 |
| 29 | 27.2356369 | 0.7107332 |
| 30 | 27.2543049 | 0.7597236 |
| 31 | 27.2731202 | 0.8091059 |
| 32 | 27.2921262 | 0.8589953 |
| 33 | 27.3113680 | 0.9095088 |
| 34 | 27.3308930 | 0.9607711 |
| 35 | 27.3433955 | 0.9559336 |
| 36 | 27.3558910 | 0.9511004 |
| 37 | 27.3683779 | 0.9462698 |
| 38 | 27.3808594 | 0.9414442 |
| 39 | 27.3933384 | 0.9366179 |
| 40 | 27.4058144 | 0.9317949 |
| 41 | 27.4182909 | 0.9269728 |
| 42 | 27.4307694 | 0.9221515 |
| 43 | 27.4432495 | 0.9173285 |
| 44 | 27.4557366 | 0.9125047 |

**********
* PHOTO FRAME NUMBER 4 OF 8 *
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## FRAME 47

| | YEAR | MONTH | DAY | HOUR | MINUTE | SECOND |
|---|---|---|---|---|---|---|
| GMT | 67 | 2 | 16 | 10 | 22 | 24.700 |

| | | | |
|---|---|---|---|
| LONGITUDE OF NADIR POINT | = 27.3892635 DEG | LATITUDE OF NADIR POINT | = 0.5047911 DEG |
| LONG OF CAMERA AXIS INTERSECT | = 27.4234431 DEG | LATI OF CAMERA AXIS INTERSECT | = 0.6104968 DEG |
| SPACECRAFT RADIUS | = 1786.7431946 KM | SPACECRAFT ALTITUDE | = 46.6531982 KM |
| MEAN ALTITUDE RATE | = -0.0134558 KM/SEC | TIME FROM PERIAPSIS | = -26.0986495 SEC |
| HORIZONTAL VELOCITY | = 1.9143401 KM/SEC | TRUE ANOMALY | = 358.3976402 DEG |
| SCALE FACTOR (HIGH) | = 0.0125069 M/KM | TILT DISTANCE (HIGH) | = 42.2510338 MM |
| SCALE FACTOR (LOW) | = 0.0016402 M/KM | TILT DISTANCE (LOW) | = 5.5411192 MM |
| IMAGE MOTION COMPENSATION (V/H) | = 0.0392507 RAD/SEC | SWING ANGLE | = 176.8649769 DEG |
| EMISSION ANGLE | = 4.0733121 DEG | INCIDENCE ANGLE | = 71.0748825 DEG |
| PHASE ANGLE | = 72.2512760 DEG | NORTH DEVIATION ANGLE | = 338.9332173 DEG |
| TILT ANGLE | = 3.9622062 DEG | RESOLUTION CONSTANT | = 1.0583750 MIR |
| TILT AZIMUTH | = 17.9189273 DEG | SUN AZIMUTH AT PRINCIPAL GND PT | = 91.7868900 DEG |
| SUN ANGLE AT NADIR | = 71.1057844 DEG | SUN ARC AT NADIR | = 2157.0219421 KM |
| LONGITUDE DISTANCE TO TARGET | = -0.0607395 DEG | LATITUDE DISTANCE TO TARGET | = -0.1122089 DEG |
| LONGITUDE ARC LENGTH TO TARGET | = -1.8425571 KM | LATITUDE ARC LENGTH TO TARGET | = -3.4039012 KM |
| FORWARD OVERLAP RATIO | = 4.6587128 PCT | SIDE OVERLAP RATIO | = 0. PCT |
| TIME BETWEEN PHOTOS | = 2.1999478 SEC | ALPHA | = -1.2216710 DEG. |

| | X | Y | Z | MAGNITUDE (KM) |
|---|---|---|---|---|
| DIRECTION COSINES TO TARGET | -0.90298142 | -0.42533460 | 0.06095106 | 48.81118345 |
| CAMERA AXIS | -0.89603937 | -0.44030630 | 0.05695427 | 48.77304077 |
| C1 | -0.91973841 | -0.33503003 | 0.20453881 | 50.25961304 |
| C2 | -0.88055722 | -0.45731660 | -0.12442371 | 48.99133301 |
| C3 | -0.84238940 | -0.53086492 | -0.09253401 | 49.00836182 |
| C4 | -0.88157059 | -0.40857835 | 0.23642551 | 50.27754211 |

| | X | Y | Z | X DOT | Y DOT | Z DOT |
|---|---|---|---|---|---|---|
| STATE VECTOR (1950.0) | -445.0014229 | -1604.1060486 | -649.0522308 | 1.7452060 | -0.1571997 | -0.7709889 |

LONG 28.1991 DEG
LATI 1.0374 DEG

LONG 27.6966 DEG
LATI -0.1783 DEG

* 39.90273 KM *
(1) (2)

LOW RESOLUTION

34.65704 KM 32.69443 KM

(4) (3)
* 40.01141 KM *

LONG 27.1334 DEG
LATI 1.4498 DEG

LONG 26.6902 DEG
LATI 0.2075 DEG

LONG 27.5974 DEG
LATI 0.9578 DEG

LONG 27.3877 DEG
LATI 0.3180 DEG

* 17.56884 KM *
(1) (2)

HIGH RESOLUTION

4.46317 KM 4.35351 KM

(4) (3)
* 17.57506 KM *

LONG 27.4602 DEG
LATI 0.9108 DEG

LONG 27.2538 DEG
LATI 0.3694 DEG

LOW RESOLUTION 47

| INDEX | LONGITUDE | LATITUDE |
|---|---|---|
| 1 | 28.1990540 | 1.0373725 |
| 2 | 28.1464856 | 0.9115050 |
| 3 | 28.0970712 | 0.7929141 |
| 4 | 28.0500629 | 0.6798454 |
| 5 | 28.0048306 | 0.5708202 |
| 6 | 27.9608319 | 0.4645502 |
| 7 | 27.9175801 | 0.3598716 |
| 8 | 27.8746159 | 0.2556856 |
| 9 | 27.8314967 | 0.1509199 |
| 10 | 27.7877722 | 0.0444714 |
| 11 | 27.7429681 | -0.0648339 |
| 12 | 27.6965556 | -0.1782927 |
| 13 | 27.6000235 | -0.1409734 |
| 14 | 27.5067351 | -0.1049723 |
| 15 | 27.4158528 | -0.0699608 |
| 16 | 27.3266227 | -0.0356433 |
| 17 | 27.2383366 | -0.0017456 |
| 18 | 27.1503253 | 0.0319917 |
| 19 | 27.0619202 | 0.0658217 |
| 20 | 26.9724455 | 0.1000025 |
| 21 | 26.8811884 | 0.1348049 |
| 22 | 26.7873814 | 0.1705157 |
| 23 | 26.6901684 | 0.2074559 |
| 24 | 26.7318864 | 0.3230603 |
| 25 | 26.7720063 | 0.4344965 |
| 26 | 26.8110120 | 0.5430846 |
| 27 | 26.8493381 | 0.6500171 |
| 28 | 26.8873904 | 0.7564161 |
| 29 | 26.9255610 | 0.8633794 |
| 30 | 26.9642475 | 0.9720315 |
| 31 | 27.0038731 | 1.0835651 |
| 32 | 27.0448992 | 1.1993061 |
| 33 | 27.0878508 | 1.3207759 |
| 34 | 27.1333542 | 1.4497870 |
| 35 | 27.2360606 | 1.4095256 |
| 36 | 27.3352058 | 1.3707660 |
| 37 | 27.4316914 | 1.3331428 |
| 38 | 27.5263338 | 1.2963332 |
| 39 | 27.6198864 | 1.2600384 |
| 40 | 27.7130666 | 1.2239784 |
| 41 | 27.8065848 | 1.1878792 |
| 42 | 27.9011579 | 1.1514640 |
| 43 | 27.9975398 | 1.1144495 |
| 44 | 28.0965381 | 1.0765300 |

HIGH RESOLUTION 47

| INDEX | LONGITUDE | LATITUDE |
|---|---|---|
| 1 | 27.5974383 | 0.8578265 |
| 2 | 27.5775836 | 0.8067563 |
| 3 | 27.5580211 | 0.7564315 |
| 4 | 27.5387034 | 0.7067265 |
| 5 | 27.5195816 | 0.6575235 |
| 6 | 27.5006154 | 0.6087116 |
| 7 | 27.4817593 | 0.5601780 |
| 8 | 27.4629722 | 0.5118159 |
| 9 | 27.4442153 | 0.4635214 |
| 10 | 27.4254439 | 0.4151876 |
| 11 | 27.4066188 | 0.3667086 |
| 12 | 27.3876994 | 0.3179794 |
| 13 | 27.3755212 | 0.3226607 |
| 14 | 27.3633504 | 0.3273402 |
| 15 | 27.3511825 | 0.3320163 |
| 16 | 27.3390203 | 0.3366916 |
| 17 | 27.3268576 | 0.3413652 |
| 18 | 27.3146968 | 0.3460387 |
| 19 | 27.3025339 | 0.3507131 |
| 20 | 27.2903666 | 0.3553875 |
| 21 | 27.2781947 | 0.3600645 |
| 22 | 27.2660158 | 0.3647432 |
| 23 | 27.2538285 | 0.3694244 |
| 24 | 27.2724614 | 0.4182842 |
| 25 | 27.2909966 | 0.4668929 |
| 26 | 27.3094752 | 0.5153591 |
| 27 | 27.3279378 | 0.5637877 |
| 28 | 27.3464236 | 0.6122855 |
| 29 | 27.3649731 | 0.6609557 |
| 30 | 27.3836277 | 0.7099085 |
| 31 | 27.4024296 | 0.7592532 |
| 32 | 27.4214232 | 0.8091033 |
| 33 | 27.4406524 | 0.8595784 |
| 34 | 27.4601636 | 0.9108023 |
| 35 | 27.4726589 | 0.9059751 |
| 36 | 27.4851456 | 0.9011529 |
| 37 | 27.4976268 | 0.8963351 |
| 38 | 27.5101018 | 0.8915190 |
| 39 | 27.5225737 | 0.8867045 |
| 40 | 27.5350449 | 0.8818918 |
| 41 | 27.5475166 | 0.8770799 |
| 42 | 27.5599887 | 0.8722681 |
| 43 | 27.5724666 | 0.8674554 |
| 44 | 27.5849490 | 0.8626418 |

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* PHOTO FRAME NUMBER 5 OF 8 *
**********

## FRAME 48

| GMT | YEAR | MONTH | DAY | HOUR | MINUTE | SECOND |
|---|---|---|---|---|---|---|
| | 67 | 2 | 16 | 10 | 22 | 26.899 |

| | | | | | |
|---|---|---|---|---|---|
| LONGITUDE OF NADIR POINT | = | 27.5150495 | DEG | LATITUDE OF NADIR POINT | = | 3.4564803 | DEG |
| LONG OF CAMERA AXIS INTERSECT | = | 27.5527399 | DEG | LATI OF CAMERA AXIS INTERSECT | = | 3.5607713 | DEG |
| SPACECRAFT RADIUS | = | 1786.7148437 | KM | SPACECRAFT ALTITUDE | = | 48.6248474 | KM |
| MEAN ALTITUDE RATE | = | -0.0123223 | KM/SEC | TIME FROM PERIAPSIS | = | -23.8994546 | SEC |
| HORIZONTAL VELOCITY | = | 1.9143703 | KM/SEC | TRUE ANOMALY | = | 358.5326500 | DEG |
| SCALE FACTOR (HIGH) | = | 0.0125143 | M/KM | TILT DISTANCE (HIGH) | = | 42.1987925 | MM |
| SCALE FACTOR (LOW) | = | 0.0016412 | M/KM | TILT DISTANCE (LOW) | = | 5.5342678 | MM |
| IMAGE MOTION COMPENSATION (V/H) | = | 0.0392740 | RAD/SEC | SWING ANGLE | = | 178.8190937 | DEG |
| EMISSION ANGLE | = | 4.0682127 | DEG | INCIDENCE ANGLE | = | 70.9438019 | DEG |
| PHASE ANGLE | = | 72.2512760 | DEG | NORTH DEVIATION ANGLE | = | 338.9030342 | DEG |
| TILT ANGLE | = | 3.9573226 | DEG | RESOLUTION CONSTANT | = | 1.0577518 | MTR |
| TILT AZIMUTH | = | 19.8695059 | DEG | SUN AZIMUTH AT PRINCIPAL GND PT | = | 91.7724962 | DEG |
| SUN ANGLE AT NADIR | = | 70.9782810 | DEG | SUN ARC AT NADIR | = | 2153.1540833 | KM |
| LONGITUDE DISTANCE TO TARGET | = | 0.0650494 | DEG | LATITUDE DISTANCE TO TARGET | = | -3.1605197 | DEG |
| LONGITUDE ARC LENGTH TO TARGET | = | 1.9732994 | KM | LATITUDE ARC LENGTH TO TARGET | = | -4.8694276 | KM |
| FORWARD OVERLAP RATIO | = | 4.5955875 | PCT | SIDE OVERLAP RATIO | = | 0. | PCT |
| TIME BETWEEN PHOTOS | = | 2.1999478 | SEC | ALPHA | = | -1.3519515 | DEG. |

| DIRECTION COSINES TO TARGET | X | Y | Z | MAGNITUDE (KM) |
|---|---|---|---|---|
| CAMERA AXIS | -0.86379859 | -0.49543634 | 0.09162327 | 48.91576862 |
| C1 | -0.89604174 | -0.44030149 | 0.05695437 | 48.74432373 |
| C2 | -0.91974020 | -0.33502508 | 0.20453891 | 50.23561096 |
| C3 | -0.88055970 | -0.45731186 | -0.12442061 | 48.96775818 |
| C4 | -0.84239226 | -0.53086039 | -0.09253391 | 48.97415161 |
| | -0.88157276 | -0.49857361 | 0.23642560 | 50.24235535 |

| STATE VECTOR (1950.0) | X | Y | Z | X DOT | Y DOT | Z DOT |
|---|---|---|---|---|---|---|
| | -441.1610527 | -1604.4485474 | -650.7470551 | 1.7460431 | -0.1541652 | -0.7697610 |

LONG 28.3286 DEG
LATI 0.9878 DEG

LONG 27.8259 DEG
LATI -0.2281 DEG

* (1) 39.91299 KM * (2)

LOW RESOLUTION

34.63623 KM 32.67479 KM

(4) * 39.95385 KM * (3)

LONG 27.2631 DEG
LATI 1.3987 DEG

LONG 26.8205 DEG
LATI 0.1582 DEG

LONG 27.7267 DEG
LATI 0.8080 DEG

LONG 27.5170 DEG
LATI 0.2684 DEG

* (1) 17.56043 KM * (2)

HIGH RESOLUTION

4.46051 KM 4.34793 KM

(4) * 17.56277 KM * (3)

LONG 27.5894 DEG
LATI 0.8609 DEG

LONG 27.3832 DEG
LATI 0.3199 DEG

LOW RESOLUTION 48

| INDEX | LONGITUDE | LATITUDE |
|---|---|---|
| 1 | 28.3286109 | 0.9878391 |
| 2 | 28.2760191 | 0.8619357 |
| 3 | 28.2265832 | 0.7433133 |
| 4 | 28.1795571 | 0.6302147 |
| 5 | 28.1343076 | 0.5211622 |
| 6 | 28.0902936 | 0.4148665 |
| 7 | 28.0470271 | 0.3101631 |
| 8 | 28.0040491 | 0.2059532 |
| 9 | 27.9609175 | 0.1011636 |
| 10 | 27.9171808 | -0.0053088 |
| 11 | 27.8723645 | -0.1146370 |
| 12 | 27.8259408 | -0.2281181 |
| 13 | 27.7293527 | -0.1906869 |
| 14 | 27.6360385 | -0.1545885 |
| 15 | 27.5451603 | -0.1194933 |
| 16 | 27.4559586 | -0.0851033 |
| 17 | 27.3677275 | -0.0511445 |
| 18 | 27.2797952 | -0.0173572 |
| 19 | 27.1914983 | 0.0165171 |
| 20 | 27.1021562 | 0.0507321 |
| 21 | 27.0110626 | 0.0855575 |
| 22 | 26.9174538 | 0.1212828 |
| 23 | 26.8204761 | 0.1582256 |
| 24 | 26.8621380 | 0.2736669 |
| 25 | 26.9022040 | 0.3849460 |
| 26 | 26.9411588 | 0.4933787 |
| 27 | 26.9794343 | 0.6001585 |
| 28 | 27.0174372 | 0.7064046 |
| 29 | 27.0555570 | 0.8132134 |
| 30 | 27.0941949 | 0.9217058 |
| 31 | 27.1337690 | 1.0330755 |
| 32 | 27.1747422 | 1.1486431 |
| 33 | 27.2176390 | 1.2699311 |
| 34 | 27.2630830 | 1.3987450 |
| 35 | 27.3656096 | 1.3586936 |
| 36 | 27.4646134 | 1.3201219 |
| 37 | 27.5609949 | 1.2826694 |
| 38 | 27.6555626 | 1.2460169 |
| 39 | 27.7490704 | 1.2098647 |
| 40 | 27.8422372 | 1.1739362 |
| 41 | 27.9357691 | 1.1379573 |
| 42 | 28.0303850 | 1.1016540 |
| 43 | 28.1268413 | 1.0647411 |
| 44 | 28.2259483 | 1.0269138 |

HIGH RESOLUTION 48

| INDEX | LONGITUDE | LATITUDE |
|---|---|---|
| 1 | 27.7266629 | 0.8079950 |
| 2 | 27.7068160 | 0.7569455 |
| 3 | 27.6872606 | 0.7066454 |
| 4 | 27.6679506 | 0.6569643 |
| 5 | 27.6488388 | 0.6077861 |
| 6 | 27.6298790 | 0.5589972 |
| 7 | 27.6110327 | 0.5104875 |
| 8 | 27.5922530 | 0.4621485 |
| 9 | 27.5735037 | 0.4138779 |
| 10 | 27.5547409 | 0.3655671 |
| 11 | 27.5359256 | 0.3171129 |
| 12 | 27.5170133 | 0.2684059 |
| 13 | 27.5048413 | 0.2730897 |
| 14 | 27.4926760 | 0.2777693 |
| 15 | 27.4805181 | 0.2824479 |
| 16 | 27.4683619 | 0.2871241 |
| 17 | 27.4562087 | 0.2917985 |
| 18 | 27.4440551 | 0.2964729 |
| 19 | 27.4319005 | 0.3011473 |
| 20 | 27.4197443 | 0.3058226 |
| 21 | 27.4075820 | 0.3104987 |
| 22 | 27.3954141 | 0.3151782 |
| 23 | 27.3832376 | 0.3198586 |
| 24 | 27.4018571 | 0.3686834 |
| 25 | 27.4203806 | 0.4172597 |
| 26 | 27.4388480 | 0.4656908 |
| 27 | 27.4572973 | 0.5140861 |
| 28 | 27.4757710 | 0.5625480 |
| 29 | 27.4943082 | 0.6111841 |
| 30 | 27.5129533 | 0.6601019 |
| 31 | 27.5317423 | 0.7094116 |
| 32 | 27.5507238 | 0.7592276 |
| 33 | 27.5699403 | 0.8096651 |
| 34 | 27.5894399 | 0.8608523 |
| 35 | 27.6019278 | 0.8560378 |
| 36 | 27.6144083 | 0.8512260 |
| 37 | 27.6268818 | 0.8464192 |
| 38 | 27.6393521 | 0.8416142 |
| 39 | 27.6518190 | 0.8368100 |
| 40 | 27.6642852 | 0.8320067 |
| 41 | 27.6767519 | 0.8272059 |
| 42 | 27.6892207 | 0.8224034 |
| 43 | 27.7016947 | 0.8176010 |
| 44 | 27.7141759 | 0.8127968 |

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* PHOTO FRAME NUMBER 6 OF 8 *
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## FRAME 49

| | YEAR | MONTH | DAY | HOUR | MINUTE | SECOND |
|---|---|---|---|---|---|---|
| GMT | 67 | 2 | 16 | 10 | 22 | 29.099 |

| | | | | | |
|---|---|---|---|---|---|
| LONGITUDE OF NADIR POINT | = | 27.6407769 | DEG | LATITUDE OF NADIR POINT | = 0.4081893 DEG |
| LONG OF CAMERA AXIS INTERSECT | = | 27.6819761 | DEG | LATI OF CAMERA AXIS INTERSECT | = 0.5110732 DEG |
| SPACECRAFT RADIUS | = | 1786.6889954 | KM | SPACECRAFT ALTITUDE | = 48.5989590 KM |
| MEAN ALTITUDE RATE | = | -0.0111893 | KM/SEC | TIME FROM PERIAPSIS | = -21.7312713 SEC |
| HORIZONTAL VELOCITY | = | 1.9143977 | KM/SEC | TRUE ANOMALY | = 358.6675949 DEG |
| SCALE FACTOR (HIGH) | = | 0.0125209 | M/KM | TILT DISTANCE (HIGH) | = 42.1959467 MM |
| SCALE FACTOR (LOW) | = | 0.0316421 | M/KM | TILT DISTANCE (LOW) | = 5.5338947 MM |
| IMAGE MOTION COMPENSATION (V/H) | = | 0.0392949 | RAD/SEC | SWING ANGLE | = 180.7751293 DEG |
| EMISSION ANGLE | = | 4.0678877 | DEG | INCIDENCE ANGLE | = 73.8127880 DEG |
| PHASE ANGLE | = | 72.2512770 | DEG | NORTH DEVIATION ANGLE | = 338.9030876 DEG |
| TILT ANGLE | = | 3.9570566 | DEG | RESOLUTION CONSTANT | = 1.0571892 MTR |
| TILT AZIMUTH | = | 21.8217320 | DEG | SUN AZIMUTH AT PRINCIPAL GND PT | = 91.7578678 DEG |
| SUN ANGLE AT NADIR | = | 70.8508425 | DEG | SUN ARC AT NADIR | = 2149.2881775 KM |
| LONGITUDE DISTANCE TO TARGET | = | 0.1937768 | DEG | LATITUDE DISTANCE TO TARGET | = -0.2088117 DEG |
| LONGITUDE ARC LENGTH TO TARGET | = | 5.7872900 | KM | LATITUDE ARC LENGTH TO TARGET | = -6.3343844 KM |
| FORWARD OVERLAP RATIO | = | 4.5884194 | PCT | SIDE OVERLAP RATIO | = 0. PCT |
| TIME BETWEEN PHOTOS | = | 2.1999478 | SEC | ALPHA | = -1.4821642 DEG. |

| | X | Y | Z | MAGNITUDE (KM) |
|---|---|---|---|---|
| DIRECTION COSINES TO TARGET | -0.81880330 | -0.56111631 | 0.12128327 | 49.37139416 |
| CAMERA AXIS | -0.89604415 | -0.44029635 | 0.05695444 | 48.71839905 |
| C1 | -0.91974202 | -0.33502002 | 0.20453899 | 50.21449280 |
| C2 | -0.88056222 | -0.45730703 | -0.12442055 | 48.94697571 |
| C3 | -0.84239519 | -0.53085577 | -0.09253385 | 48.94277954 |
| C4 | -0.88157499 | -0.40856877 | 0.23642568 | 50.21006775 |

| | X | Y | Z | X DOT | Y DOT | Z DOT |
|---|---|---|---|---|---|---|
| STATE VECTOR (1950.0) | -437.3205795 | -1604.7842255 | -652.4384155 | 1.7468728 | -0.1511312 | -0.7685303 |

LONG 28.4582 DEG
LATI 0.9384 DEG

LONG 27.9553 DEG
LATI -0.2780 DEG

39.92551 KM

(1) (2)

LOW RESOLUTION

34.61774 KM 32.65729 KM

(4) (3)

39.89873 KM

LONG 27.3927 DEG
LATI 1.3478 DEG

LONG 26.9537 DEG
LATI 0.1093 DEG

LONG 27.8558 DEG
LATI 0.7582 DEG

LONG 27.6463 DEG
LATI 0.2188 DEG

17.55303 KM

(1) (2)

HIGH RESOLUTION

4.45814 KM 4.34561 KM

(4) (3)

17.55150 KM

LONG 27.7187 DEG
LATI 0.8109 DEG

LONG 27.5126 DEG
LATI 0.2703 DEG

LOW RESOLUTION 49

| INDEX | LONGITUDE | LATITUDE |
|---|---|---|
| 1 | 28.4581547 | 0.9383570 |
| 2 | 28.4055343 | 0.8124117 |
| 3 | 28.3560760 | 0.6937491 |
| 4 | 28.3090281 | 0.5806147 |
| 5 | 28.2637601 | 0.4715281 |
| 6 | 28.2197287 | 0.3652000 |
| 7 | 28.1764438 | 0.2604658 |
| 8 | 28.1334500 | 0.1562269 |
| 9 | 28.0903025 | 0.0514083 |
| 10 | 28.0465527 | -0.0550957 |
| 11 | 28.0017211 | -0.1644505 |
| 12 | 27.9552846 | -0.2779631 |
| 13 | 27.8586321 | -0.2404175 |
| 14 | 27.7652869 | -0.2042201 |
| 15 | 27.6744063 | -0.1690386 |
| 16 | 27.5852270 | -0.1345744 |
| 17 | 27.4970460 | -0.1005523 |
| 18 | 27.4091892 | -0.0667113 |
| 19 | 27.3209908 | -0.0327943 |
| 20 | 27.2317781 | 0.0014566 |
| 21 | 27.1408412 | 0.0363093 |
| 22 | 27.0474222 | 0.0720500 |
| 23 | 26.9506726 | 0.1089979 |
| 24 | 26.9922824 | 0.2242838 |
| 25 | 27.0322967 | 0.3354118 |
| 26 | 27.0712016 | 0.4436959 |
| 27 | 27.1094298 | 0.5503297 |
| 28 | 27.1473844 | 0.6564290 |
| 29 | 27.1854572 | 0.7630892 |
| 30 | 27.2240477 | 0.8714288 |
| 31 | 27.2635734 | 0.9826414 |
| 32 | 27.3044934 | 1.0980442 |
| 33 | 27.3473396 | 1.2191563 |
| 34 | 27.3927281 | 1.3477824 |
| 35 | 27.4930817 | 1.3079368 |
| 36 | 27.5939512 | 1.2695503 |
| 37 | 27.6902313 | 1.2322668 |
| 38 | 27.7847326 | 1.1957663 |
| 39 | 27.8782034 | 1.1597559 |
| 40 | 27.9713595 | 1.1239563 |
| 41 | 28.0649116 | 1.0880961 |
| 42 | 28.1595788 | 1.0519012 |
| 43 | 28.2561145 | 1.0150882 |
| 44 | 28.3553369 | 0.9773505 |

HIGH RESOLUTION 49

| INDEX | LONGITUDE | LATITUDE |
|---|---|---|
| 1 | 27.8558338 | 0.7581954 |
| 2 | 27.8359954 | 0.7071730 |
| 3 | 27.8164470 | 0.6568926 |
| 4 | 27.7971435 | 0.6072337 |
| 5 | 27.7780371 | 0.5580768 |
| 6 | 27.7590852 | 0.5093093 |
| 7 | 27.7402465 | 0.4608192 |
| 8 | 27.7214756 | 0.4125024 |
| 9 | 27.7027323 | 0.3642514 |
| 10 | 27.6839759 | 0.3159620 |
| 11 | 27.6651678 | 0.2675274 |
| 12 | 27.6462646 | 0.2188427 |
| 13 | 27.6340973 | 0.2235282 |
| 14 | 27.6219380 | 0.2282103 |
| 15 | 27.6097858 | 0.2328890 |
| 16 | 27.5976372 | 0.2375668 |
| 17 | 27.5854897 | 0.2422429 |
| 18 | 27.5733459 | 0.2469182 |
| 19 | 27.5611987 | 0.2515934 |
| 20 | 27.5490520 | 0.2562687 |
| 21 | 27.5368986 | 0.2609457 |
| 22 | 27.5247402 | 0.2656243 |
| 23 | 27.5125735 | 0.2703056 |
| 24 | 27.5311837 | 0.3190996 |
| 25 | 27.5496955 | 0.3676435 |
| 26 | 27.5681498 | 0.4160439 |
| 27 | 27.5865896 | 0.4644076 |
| 28 | 27.6050522 | 0.5128379 |
| 29 | 27.6235797 | 0.5614432 |
| 30 | 27.6422107 | 0.6103286 |
| 31 | 27.6609912 | 0.6596067 |
| 32 | 27.6799610 | 0.7093886 |
| 33 | 27.6991661 | 0.7597945 |
| 34 | 27.7186539 | 0.8109466 |
| 35 | 27.7311366 | 0.8061433 |
| 36 | 27.7436099 | 0.8013425 |
| 37 | 27.7560794 | 0.7965452 |
| 38 | 27.7685435 | 0.7917504 |
| 39 | 27.7810066 | 0.7869573 |
| 40 | 27.7934690 | 0.7821651 |
| 41 | 27.8059318 | 0.7773728 |
| 42 | 27.8183992 | 0.7725806 |
| 43 | 27.8308694 | 0.7677875 |
| 44 | 27.8433483 | 0.7629927 |

PHOTO FRAME NUMBER 7 OF 8

## FRAME 50

| | YEAR | MONTH | DAY | HOUR | MINUTE | SECOND |
|---|---|---|---|---|---|---|
| GMT | 67 | 2 | 16 | 10 | 22 | 31.299 |

| | | | | | |
|---|---|---|---|---|---|
| LONGITUDE OF NADIR POINT | = | 27.7665725 | DEG | LATITUDE OF NADIR POINT | = 0.3598699 DEG |
| LONG OF CAMERA AXIS INTERSECT | = | 27.8112772 | DEG | LATI OF CAMERA AXIS INTERSECT | = 0.4613545 DEG |
| SPACECRAFT RADIUS | = | 1786.6656189 | KM | SPACECRAFT ALTITUDE | = 48.5756226 KM |
| MEAN ALTITUDE RATE | = | -0.0100556 | KM/SEC | TIME FROM PERIAPSIS | = -19.5020363 SEC |
| HORIZONTAL VELOCITY | = | 1.9144224 | KM/SEC | TRUE ANOMALY | = 358.8026085 DEG |
| SCALE FACTOR (HIGH) | = | 0.0125269 | M/KM | TILT DISTANCE (HIGH) | = 42.2419791 MM |
| SCALE FACTOR (LOW) | = | 0.0016429 | M/KM | TILT DISTANCE (LOW) | = 5.5399317 MM |
| IMAGE MOTION COMPENSATION (V/H) | = | 0.0393134 | RAD/SEC | SWING ANGLE | = 102.7299404 DEG |
| EMISSION ANGLE | = | 4.0722603 | DEG | INCIDENCE ANGLE | = 70.6817284 DEG |
| PHASE ANGLE | = | 72.2512770 | DEG | NORTH DEVIATION ANGLE | = 338.9033585 DEG |
| TILT ANGLE | = | 3.9613598 | DEG | RESOLUTION CONSTANT | = 1.0566863 MTR |
| TILT AZIMUTH | = | 23.7727613 | DEG | SUN AZIMUTH AT PRINCIPAL GND PT | = 91.7429934 DEG |
| SUN ANGLE AT NADIR | = | 70.7233553 | DEG | SUN ARC AT NADIR | = 2145.4208069 KM |
| LONGITUDE DISTANCE TO TARGET | = | 0.3165724 | DEG | LATITUDE DISTANCE TO TARGET | = -0.2571301 DEG |
| LONGITUDE ARC LENGTH TO TARGET | = | 9.6033491 | KM | LATITUDE ARC LENGTH TO TARGET | = -7.8001441 KM |
| FORWARD OVERLAP RATIO | = | 4.4930379 | PCT | SIDE OVERLAP RATIO | = 0. PCT |
| TIME BETWEEN PHOTOS | = | 2.1999478 | SEC | ALPHA | = -1.6124188 DEG. |

| | X | Y | Z | MAGNITUDE (KM) |
|---|---|---|---|---|
| DIRECTION COSINES TO TARGET | -0.76920205 | -0.62129760 | 0.14939047 | 50.16900730 |
| CAMERA AXIS | -0.89604650 | -0.44029178 | 0.05695453 | 48.69522095 |
| C1 | -0.91974380 | -0.33501512 | 0.20453908 | 50.19619751 |
| C2 | -0.88056467 | -0.45730232 | -0.12442045 | 48.92897034 |
| C3 | -0.84239803 | -0.53085127 | -0.09253375 | 48.91416931 |
| C4 | -0.88157715 | -0.40856406 | 0.23642576 | 50.18361829 |

| | X | Y | Z | X DOT | Y DOT | Z DOT |
|---|---|---|---|---|---|---|
| STATE VECTOR (1950.0) | -433.4765587 | -1605.1133728 | -654.1278229 | 1.7475955 | -0.1480951 | -0.7672959 |

LONG 28.5878 DEG
LATI 0.8889 DEG

LONG 28.0847 DEG
LATI -0.3279 DEG

(1) • 39.94032 KM • (2)

LOW RESOLUTION

34.60152 KM 32.64189 KM

(4) • 39.84589 KM • (3)

LONG 27.5224 DEG
LATI 1.2968 DEG

LONG 27.0809 DEG
LATI 0.0597 DEG

LONG 27.9851 DEG
LATI 0.7084 DEG

LONG 27.7756 DEG
LATI 0.1692 DEG

(1) • 17.54662 KM • (2)

HIGH RESOLUTION

4.45674 KM 4.34357 KM

(4) • 17.54122 KM • (3)

LONG 27.8479 DEG
LATI 0.7613 DEG

LONG 27.6420 DEG
LATI 0.2207 DEG

LOW RESOLUTION 50

| INDEX | LONGITUDE | LATITUDE |
|---|---|---|
| 1 | 28.5878093 | 0.8888808 |
| 2 | 28.5351617 | 0.7628852 |
| 3 | 28.4856770 | 0.6441773 |
| 4 | 28.4386044 | 0.5310002 |
| 5 | 28.3933139 | 0.4218735 |
| 6 | 28.3492630 | 0.3155069 |
| 7 | 28.3059592 | 0.2107361 |
| 8 | 28.2629464 | 0.1064613 |
| 9 | 28.2197835 | 0.0016048 |
| 10 | 28.1760156 | -0.1049322 |
| 11 | 28.1311672 | -0.2143245 |
| 12 | 28.0847127 | -0.3278713 |
| 13 | 27.9879920 | -0.2902088 |
| 14 | 27.8946095 | -0.2539114 |
| 15 | 27.8037195 | -0.2186412 |
| 16 | 27.7145576 | -0.1841009 |
| 17 | 27.6264219 | -0.1500140 |
| 18 | 27.5386331 | -0.1161166 |
| 19 | 27.4505303 | -0.0821544 |
| 20 | 27.3614388 | -0.0478677 |
| 21 | 27.2706544 | -0.0129874 |
| 22 | 27.1774197 | 0.0227727 |
| 23 | 27.0808914 | 0.0597266 |
| 24 | 27.1224480 | 0.1748639 |
| 25 | 27.1624141 | 0.2858468 |
| 26 | 27.2012715 | 0.3939909 |
| 27 | 27.2394533 | 0.5004847 |
| 28 | 27.2773628 | 0.6064431 |
| 29 | 27.3153908 | 0.7129607 |
| 30 | 27.3539345 | 0.8211552 |
| 31 | 27.3934128 | 0.9322158 |
| 32 | 27.4342861 | 1.0474616 |
| 33 | 27.4770815 | 1.1684046 |
| 34 | 27.5224173 | 1.2968497 |
| 35 | 27.6246035 | 1.2572073 |
| 36 | 27.7233455 | 1.2190035 |
| 37 | 27.8195336 | 1.1818865 |
| 38 | 27.9139714 | 1.1455371 |
| 39 | 28.0074105 | 1.1096658 |
| 40 | 28.1005640 | 1.0739926 |
| 41 | 28.1941421 | 1.0382493 |
| 42 | 28.2888639 | 1.0021603 |
| 43 | 28.3854883 | 0.9654455 |
| 44 | 28.4848337 | 0.9277967 |

HIGH RESOLUTION 50

| INDEX | LONGITUDE | LATITUDE |
|---|---|---|
| 1 | 27.9850819 | 0.7083948 |
| 2 | 27.9652481 | 0.6573903 |
| 3 | 27.9457068 | 0.6071304 |
| 4 | 27.9264092 | 0.5574903 |
| 5 | 27.9073095 | 0.5083522 |
| 6 | 27.8883629 | 0.4596009 |
| 7 | 27.8695281 | 0.4111304 |
| 8 | 27.8507638 | 0.3628316 |
| 9 | 27.8320282 | 0.3145994 |
| 10 | 27.8132782 | 0.2663270 |
| 11 | 27.7944753 | 0.2179112 |
| 12 | 27.7755797 | 0.1692435 |
| 13 | 27.7634172 | 0.1739308 |
| 14 | 27.7512629 | 0.1786154 |
| 15 | 27.7391157 | 0.1832958 |
| 16 | 27.7269728 | 0.1879753 |
| 17 | 27.7148345 | 0.1926523 |
| 18 | 27.7026966 | 0.1973293 |
| 19 | 27.6905568 | 0.2020054 |
| 20 | 27.6784174 | 0.2066815 |
| 21 | 27.6662736 | 0.2113593 |
| 22 | 27.6541240 | 0.2160372 |
| 23 | 27.6419673 | 0.2207193 |
| 24 | 27.6605661 | 0.2694851 |
| 25 | 27.6790681 | 0.3179999 |
| 26 | 27.6975136 | 0.3663713 |
| 27 | 27.7159424 | 0.4147069 |
| 28 | 27.7343936 | 0.4631090 |
| 29 | 27.7529113 | 0.5116862 |
| 30 | 27.7715347 | 0.5605417 |
| 31 | 27.7903025 | 0.6097899 |
| 32 | 27.8092620 | 0.6595427 |
| 33 | 27.8284590 | 0.7099188 |
| 34 | 27.8479359 | 0.7610402 |
| 35 | 27.8604124 | 0.7562479 |
| 36 | 27.8728817 | 0.7514574 |
| 37 | 27.8853450 | 0.7466703 |
| 38 | 27.8978062 | 0.7418857 |
| 39 | 27.9102654 | 0.7371020 |
| 40 | 27.9227228 | 0.7323192 |
| 41 | 27.9351842 | 0.7275372 |
| 42 | 27.9476488 | 0.7227535 |
| 43 | 27.9601181 | 0.7179698 |
| 44 | 27.9725952 | 0.7131836 |

**********
* PHOTO FRAME NUMBER 8 OF 8 *
**********

## FRAME 51

| | YEAR | MONTH | DAY | HOUR | MINUTE | SECOND |
|---|---|---|---|---|---|---|
| GMT | 67 | 2 | 16 | 10 | 22 | 33.499 |

| | | | | | |
|---|---|---|---|---|---|
| LONGITUDE OF NADIR POINT | = | 27.8724245 DEG | LATITUDE OF NADIR POINT | = | 0.3115266 DEG |
| LONG OF CAMERA AXIS INTERSECT | = | 27.9406362 DEG | LATI OF CAMERA AXIS INTERSECT | = | 0.4116179 DEG |
| SPACECRAFT RADIUS | = | 1786.6447449 KM | SPACECRAFT ALTITUDE | = | 48.5547485 KM |
| MEAN ALTITUDE RATE | = | -0.0089214 KM/SEC | TIME FROM PERIAPSIS | = | -17.3018548 SEC |
| HORIZONTAL VELOCITY | = | 1.9144444 KM/SEC | TRUE ANOMALY | = | 358.9376869 DEG |
| SCALE FACTOR (HIGH) | = | 0.0125321 M/KM | TILT DISTANCE (HIGH) | = | 42.3375897 MM |
| SCALE FACTOR (LOW) | = | 0.0016436 M/KM | TILT DISTANCE (LOW) | = | 5.5524708 MM |
| IMAGE MOTION COMPENSATION (V/H) | = | 0.0393236 RAD/SEC | SWING ANGLE | = | 184.6792011 DEG |
| EMISSION ANGLE | = | 4.0813872 DEG | INCIDENCE ANGLE | = | 70.5506182 DEG |
| PHASE ANGLE | = | 72.2512779 DEG | NORTH DEVIATION ANGLE | = | 338.9338582 DEG |
| TILT ANGLE | = | 3.9702973 DEG | RESOLUTION CONSTANT | = | 1.0562439 MTR |
| TILT AZIMUTH | = | 25.7181330 DEG | SUN AZIMUTH AT PRINCIPAL GND PT | = | 91.7278729 DEG |
| SUN ANGLE AT NADIR | = | 70.5958195 DEG | SUN ARC AT NADIR | = | 2141.5519714 KM |
| LONGITUDE DISTANCE TO TARGET | = | 0.4424248 DEG | LATITUDE DISTANCE TO TARGET | = | -0.3054734 DEG |
| LONGITUDE ARC LENGTH TO TARGET | = | 13.4211296 KM | LATITUDE ARC LENGTH TO TARGET | = | -9.2666547 KM |
| FORWARD OVERLAP RATIO | = | 4.4080677 PCT | SIDE OVERLAP RATIO | = | 0. PCT |
| TIME BETWEEN PHOTOS | = | 2.1999478 SEC | ALPHA | = | -1.7427251 DEG. |

| | X | Y | Z | MAGNITUDE (KM) |
|---|---|---|---|---|
| DIRECTION COSINES TO TARGET | | | | |
| CAMERA AXIS | -0.71642014 | -0.67523260 | 0.17550819 | 51.29300928 |
| C1 | -0.89674888 | -0.44028693 | 0.05695460 | 48.67483521 |
| C2 | -0.91974559 | -0.33501015 | 0.20453915 | 50.18077087 |
| C3 | -0.88056716 | -0.45729757 | -0.12442039 | 48.91375732 |
| C4 | -0.84240090 | -0.53084671 | -0.09253369 | 48.88835144 |
| | -0.88157934 | -0.40855930 | 0.23642583 | 50.15403748 |

| | X | Y | Z | X DOT | Y DOT | Z DOT |
|---|---|---|---|---|---|---|
| STATE VECTOR (1950.0) | -429.6289749 | -1605.4359894 | -655.8152771 | 1.7485114 | -0.1450569 | -0.7660576 |

LONG 28.7176 DEG
LATI 0.8394 DEG

LONG 28.2142 DEG
LATI -0.3778 DEG

(1) • 39.95748 KM • (2)

LOW RESOLUTION

34.58762 KM 32.62863 KM

(4) • 39.79543 KM • (3)

LONG 27.6521 DEG
LATI 1.2459 DEG

LONG 27.2111 DEG
LATI 0.0104 DEG

LONG 28.1144 DEG
LATI 0.6586 DEG

LONG 27.9050 DEG
LATI 0.1196 DEG

(1) • 17.54121 KM • (2)

HIGH RESOLUTION

4.45423 KM 4.34179 KM

(4) • 17.53193 KM • (3)

LONG 27.9773 DEG
LATI 0.7111 DEG

LONG 27.7714 DEG
LATI 0.1711 DEG

LOW RESOLUTION 51

| INDEX | LONGITUDE | LATITUDE |
|---|---|---|
| 1 | 28.7175725 | 0.8394123 |
| 2 | 28.6648927 | 0.7133586 |
| 3 | 28.6153791 | 0.5945987 |
| 4 | 28.5682797 | 0.4813712 |
| 5 | 28.5229650 | 0.3721983 |
| 6 | 28.4788902 | 0.2657874 |
| 7 | 28.4355643 | 0.1609730 |
| 8 | 28.3925314 | 0.0566556 |
| 9 | 28.3493474 | -0.0482433 |
| 10 | 28.3055608 | -0.1548216 |
| 11 | 28.2606928 | -0.2642557 |
| 12 | 28.2142215 | -0.3778461 |
| 13 | 28.1174238 | -0.3400649 |
| 14 | 28.0239980 | -0.3036625 |
| 15 | 27.9330924 | -0.2683026 |
| 16 | 27.8439448 | -0.2336838 |
| 17 | 27.7558451 | -0.1995286 |
| 18 | 27.6681197 | -0.1655740 |
| 19 | 27.5801058 | -0.1315640 |
| 20 | 27.4911313 | -0.0972380 |
| 21 | 27.4004912 | -0.0623306 |
| 22 | 27.3074348 | -0.0265524 |
| 23 | 27.2111211 | 0.0104126 |
| 24 | 27.2526286 | 0.1254091 |
| 25 | 27.2925476 | 0.2362545 |
| 26 | 27.3313601 | 0.3442637 |
| 27 | 27.3694983 | 0.4506226 |
| 28 | 27.4073639 | 0.5564470 |
| 29 | 27.4453490 | 0.6628289 |
| 30 | 27.4838481 | 0.7708833 |
| 31 | 27.5232813 | 0.8818005 |
| 32 | 27.5641096 | 0.9968951 |
| 33 | 27.6068566 | 1.1176785 |
| 34 | 27.6521392 | 1.2459494 |
| 35 | 27.7541673 | 1.2065068 |
| 36 | 27.8527889 | 1.1684848 |
| 37 | 27.9488900 | 1.1315301 |
| 38 | 28.0432737 | 1.0953301 |
| 39 | 28.1366854 | 1.0595937 |
| 40 | 28.2298412 | 1.0240468 |
| 41 | 28.3234518 | 0.9884171 |
| 42 | 28.4182363 | 0.9524340 |
| 43 | 28.5149534 | 0.9158139 |
| 44 | 28.6144278 | 0.8782505 |

HIGH RESOLUTION 51

| INDEX | LONGITUDE | LATITUDE |
|---|---|---|
| 1 | 28.1143954 | 0.6585907 |
| 2 | 28.0945678 | 0.6076034 |
| 3 | 28.0750313 | 0.5573579 |
| 4 | 28.0557382 | 0.5077341 |
| 5 | 28.0366428 | 0.4586105 |
| 6 | 28.0177028 | 0.4098762 |
| 7 | 27.9988737 | 0.3614203 |
| 8 | 27.9801135 | 0.3131360 |
| 9 | 27.9613822 | 0.2649191 |
| 10 | 27.9426386 | 0.2166621 |
| 11 | 27.9238424 | 0.1682608 |
| 12 | 27.9049511 | 0.1196094 |
| 13 | 27.8927922 | 0.1242992 |
| 14 | 27.8806429 | 0.1289856 |
| 15 | 27.8685017 | 0.1336685 |
| 16 | 27.8563626 | 0.1383497 |
| 17 | 27.8442302 | 0.1430284 |
| 18 | 27.8320973 | 0.1477062 |
| 19 | 27.8199661 | 0.1523832 |
| 20 | 27.8078332 | 0.1570610 |
| 21 | 27.7956967 | 0.1617397 |
| 22 | 27.7835560 | 0.1664201 |
| 23 | 27.7714078 | 0.1711022 |
| 24 | 27.7899966 | 0.2198407 |
| 25 | 27.8084900 | 0.2683299 |
| 26 | 27.8269255 | 0.3166766 |
| 27 | 27.8453453 | 0.3649857 |
| 28 | 27.8637888 | 0.4133622 |
| 29 | 27.8822963 | 0.4619120 |
| 30 | 27.9009109 | 0.5107428 |
| 31 | 27.9196696 | 0.5599645 |
| 32 | 27.9386225 | 0.6096900 |
| 33 | 27.9578087 | 0.6600379 |
| 34 | 27.9772773 | 0.7111328 |
| 35 | 27.9897473 | 0.7063500 |
| 36 | 28.0022125 | 0.7015705 |
| 37 | 28.0146730 | 0.6967928 |
| 38 | 28.0271289 | 0.6920177 |
| 39 | 28.0395854 | 0.6872442 |
| 40 | 28.0520422 | 0.6824708 |
| 41 | 28.0645013 | 0.6776973 |
| 42 | 28.0769658 | 0.6729239 |
| 43 | 28.0894344 | 0.6681487 |
| 44 | 28.1019101 | 0.6633710 |

**********
* PHOTO FRAME NUMBER 1 OF 8 *
**********

## FRAME 52

| | YEAR | MONTH | DAY | HOUR | MINUTE | SECOND |
|---|---|---|---|---|---|---|
| GMT | 67 | 2 | 16 | 13 | 50 | 37.099 |

| | | | | | |
|---|---|---|---|---|---|
| LONGITUDE OF NADIR POINT | = | 24.3375566 | DEG | LATITUDE OF NADIR POINT | = 0.9253865 DEG |
| LONG OF CAMERA AXIS INTERSECT | = | 24.1781273 | DEG | LATI OF CAMERA AXIS INTERSECT | = 0.5631508 DEG |
| SPACECRAFT RADIUS | = | 1786.7195740 | KM | SPACECRAFT ALTITUDE | = 48.6295776 KM |
| MEAN ALTITUDE RATE | = | -0.0240289 | KM/SEC | TIME FROM PERIAPSIS | = -46.5825434 SEC |
| HORIZONTAL VELOCITY | = | 1.9142615 | KM/SEC | TRUE ANOMALY | = 357.1392822 DEG |
| SCALE FACTOR (HIGH) | = | 0.0121684 | M/KM | TILT DISTANCE (HIGH) | = 150.4665833 MM |
| SCALE FACTOR (LOW) | = | 0.0015959 | M/KM | TILT DISTANCE (LOW) | = 19.7333224 MM |
| IMAGE MOTION COMPENSATION (V/H) | = | 0.0381891 | RAD/SEC | SWING ANGLE | = 2.8847463 DEG |
| EMISSION ANGLE | = | 14.2521079 | DEG | INCIDENCE ANGLE | = 72.5579424 DEG |
| PHASE ANGLE | = | 67.7562227 | DEG | NORTH DEVIATION ANGLE | = 338.4648972 DEG |
| TILT ANGLE | = | 13.8563441 | DEG | RESOLUTION CONSTANT | = 1.0878178 MTR |
| TILT AZIMUTH | = | 203.7546043 | DEG | SUN AZIMUTH AT PRINCIPAL GND PT | = 91.7396889 DEG |
| SUN ANGLE AT NADIR | = | 72.4099770 | DEG | SUN ARC AT NADIR | = 2196.5851440 KM |
| LONGITUDE DISTANCE TO TARGET | = | -0.1794434 | DEG | LATITUDE DISTANCE TO TARGET | = 0.4753865 DEG |
| LONGITUDE ARC LENGTH TO TARGET | = | -5.4434848 | KM | LATITUDE ARC LENGTH TO TARGET | = 14.4210352 KM |
| FORWARD OVERLAP RATIO | = | 0. | PCT | SIDE OVERLAP RATIO | = 0. PCT |
| TIME BETWEEN PHOTOS | = | 0. | SEC | ALPHA | = 4.2811419 DEG. |

| | X | Y | Z | MAGNITUDE (KM) |
|---|---|---|---|---|
| DIRECTION COSINES TO TARGET | -0.90833799 | -0.29387359 | -0.29768258 | 51.07911539 |
| CAMERA AXIS | -0.84152107 | -0.48650551 | -0.23485034 | 50.12985229 |
| C1 | -0.91069752 | -0.40375996 | -0.08722335 | 48.75790405 |
| C2 | -0.77881115 | -0.47767829 | -0.40638899 | 53.41459656 |
| C3 | -0.74421600 | -0.55298915 | -0.37462723 | 53.47941589 |
| C4 | -0.87602235 | -0.47907082 | -0.05546160 | 48.81175232 |

| | X | Y | Z | X DOT | Y DOT | Z DOT |
|---|---|---|---|---|---|---|
| STATE VECTOR (1950.0) | -479.7129097 | -1630.1183929 | -633.9270782 | 1.7374832 | -0.1840722 | -0.7824605 |

LONG 24.8833 DEG
LATI 0.9657 DEG

LONG 24.4930 DEG
LATI -0.3855 DEG

(1) * 42.66429 KM * (2)

LOW RESOLUTION

31.33995 KM 38.62138 KM

(4) * 43.08008 KM * (3)

LONG 23.9190 DEG
LATI 1.3369 DEG

LONG 23.2998 DEG
LATI 0.0588 DEG

LONG 24.3495 DEG
LATI 0.8111 DEG

LONG 24.1364 DEG
LATI 0.2357 DEG

(1) * 18.61346 KM * (2)

HIGH RESOLUTION

4.33173 KM 4.74577 KM

(4) * 18.63642 KM * (3)

LONG 24.2161 DEG
LATI 0.8623 DEG

LONG 23.9900 DEG
LATI 0.2908 DEG

LOW RESOLUTION 52

| INDEX | LONGITUDE | LATITUDE |
|---|---|---|
| 1 | 24.8832841 | 0.9656837 |
| 2 | 24.8512099 | 0.8561966 |
| 3 | 24.8195548 | 0.7478775 |
| 4 | 24.7879901 | 0.6395994 |
| 5 | 24.7561905 | 0.5302429 |
| 6 | 24.7238181 | 0.4186419 |
| 7 | 24.6905122 | 0.3035293 |
| 8 | 24.6558712 | 0.1834759 |
| 9 | 24.6194243 | 0.0568220 |
| 10 | 24.5806158 | -0.0784481 |
| 11 | 24.5387521 | -0.2248276 |
| 12 | 24.4929504 | -0.3855249 |
| 13 | 24.3793666 | -0.3422463 |
| 14 | 24.2694700 | -0.3005693 |
| 15 | 24.1622734 | -0.2601030 |
| 16 | 24.0568762 | -0.2204956 |
| 17 | 23.9524455 | -0.1814269 |
| 18 | 23.8481731 | -0.1425913 |
| 19 | 23.7432570 | -0.1036917 |
| 20 | 23.6368723 | -0.0644283 |
| 21 | 23.5281563 | -0.0244888 |
| 22 | 23.4161575 | 0.0164608 |
| 23 | 23.2998137 | 0.0587849 |
| 24 | 23.3740895 | 0.2106362 |
| 25 | 23.4415915 | 0.3489877 |
| 26 | 23.5038381 | 0.4768650 |
| 27 | 23.5620117 | 0.5966273 |
| 28 | 23.6170526 | 0.7101698 |
| 29 | 23.6697404 | 0.8190660 |
| 30 | 23.7207375 | 0.9246633 |
| 31 | 23.7706327 | 1.0281569 |
| 32 | 23.8199584 | 1.1306533 |
| 33 | 23.8692293 | 1.2332145 |
| 34 | 23.9189565 | 1.3369045 |
| 35 | 24.0124130 | 1.3008172 |
| 36 | 24.1025395 | 1.2660370 |
| 37 | 24.1901622 | 1.2322447 |
| 38 | 24.2760205 | 1.1991532 |
| 39 | 24.3607965 | 1.1664990 |
| 40 | 24.4451394 | 1.1340299 |
| 41 | 24.5296876 | 1.1015029 |
| 42 | 24.6150804 | 1.0686710 |
| 43 | 24.7019877 | 1.0352774 |
| 44 | 24.7911258 | 1.0010487 |

HIGH RESOLUTION 52

| INDEX | LONGITUDE | LATITUDE |
|---|---|---|
| 1 | 24.3494995 | 0.8110704 |
| 2 | 24.3313897 | 0.7622004 |
| 3 | 24.3131647 | 0.7130103 |
| 4 | 24.2947805 | 0.6633907 |
| 5 | 24.2761958 | 0.6132255 |
| 6 | 24.2573688 | 0.5623918 |
| 7 | 24.2382491 | 0.5107675 |
| 8 | 24.2187884 | 0.4582126 |
| 9 | 24.1989341 | 0.4045888 |
| 10 | 24.1786256 | 0.3497373 |
| 11 | 24.1578047 | 0.2934907 |
| 12 | 24.1364014 | 0.2356680 |
| 13 | 24.1230958 | 0.2406865 |
| 14 | 24.1097949 | 0.2457024 |
| 15 | 24.0964961 | 0.2507140 |
| 16 | 24.0831981 | 0.2557248 |
| 17 | 24.0698996 | 0.2607331 |
| 18 | 24.0566008 | 0.2657413 |
| 19 | 24.0432951 | 0.2707495 |
| 20 | 24.0299838 | 0.2757586 |
| 21 | 24.0166626 | 0.2807677 |
| 22 | 24.0033336 | 0.2857794 |
| 23 | 23.9899909 | 0.2907944 |
| 24 | 24.0127273 | 0.3481945 |
| 25 | 24.0348403 | 0.4040296 |
| 26 | 24.0564022 | 0.4584824 |
| 27 | 24.0774786 | 0.5117178 |
| 28 | 24.0981309 | 0.5638902 |
| 29 | 24.1184151 | 0.6151413 |
| 30 | 24.1383867 | 0.6656070 |
| 31 | 24.1580927 | 0.7154102 |
| 32 | 24.1775823 | 0.7646721 |
| 33 | 24.1969008 | 0.8135080 |
| 34 | 24.2160914 | 0.8620279 |
| 35 | 24.2282460 | 0.8573868 |
| 36 | 24.2403884 | 0.8527483 |
| 37 | 24.2525225 | 0.8481148 |
| 38 | 24.2646513 | 0.8434831 |
| 39 | 24.2767742 | 0.8388522 |
| 40 | 24.2888932 | 0.8342231 |
| 41 | 24.3010116 | 0.8295948 |
| 42 | 24.3131282 | 0.8249656 |
| 43 | 24.3252473 | 0.8203347 |
| 44 | 24.3373711 | 0.8157039 |

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* PHOTO FRAME NUMBER 2 OF 8 *
**********

## FRAME 53

| | YEAR | MONTH | DAY | HOUR | MINUTE | SECOND |
|---|---|---|---|---|---|---|
| GMT | 67 | 2 | 16 | 13 | 50 | 39.299 |

| | | | | | |
|---|---|---|---|---|---|
| LONGITUDE OF NADIR POINT | = | 24.4634087 | DEG | LATITUDE OF NADIR POINT | = 0.8770484 DEG |
| LONG OF CAMERA AXIS INTERSECT | = | 24.3076732 | DEG | LATI OF CAMERA AXIS INTERSECT | = 0.5138559 DEG |
| SPACECRAFT RADIUS | = | 1786.6679230 | KM | SPACECRAFT ALTITUDE | = 46.5779266 KM |
| MEAN ALTITUDE RATE | = | -0.0228950 | KM/SEC | TIME FROM PERIAPSIS | = -44.3819880 SEC |
| HORIZONTAL VELOCITY | = | 1.9143162 | KM/SEC | TRUE ANOMALY | = 357.2743683 DEG |
| SCALE FACTOR (HIGH) | = | 0.0121817 | M/KM | TILT DISTANCE (HIGH) | = 150.3995895 MM |
| SCALE FACTOR (LOW) | = | 0.0015976 | M/KM | TILT DISTANCE (LOW) | = 19.7245364 MM |
| IMAGE MOTION COMPENSATION (V/H) | = | 0.0382314 | RAD/SEC | SWING ANGLE | = 2.3211036 DEG |
| EMISSION ANGLE | = | 14.2455738 | DEG | INCIDENCE ANGLE | = 72.4266663 DEG |
| PHASE ANGLE | = | 67.7562237 | DEG | NORTH DEVIATION ANGLE | = 338.4585609 DEG |
| TILT ANGLE | = | 13.8504124 | DEG | RESOLUTION CONSTANT | = 1.0866327 MTR |
| TILT AZIMUTH | = | 203.2093372 | DEG | SUN AZIMUTH AT PRINCIPAL GND PT | = 91.7266073 DEG |
| SUN ANGLE AT NADIR | = | 72.2823362 | DEG | SUN ARC AT NADIR | = 2192.7131042 KM |
| LONGITUDE DISTANCE TO TARGET | = | -0.0535913 | DEG | LATITUDE DISTANCE TO TARGET | = 0.4270483 DEG |
| LONGITUDE ARC LENGTH TO TARGET | = | -1.6257117 | KM | LATITUDE ARC LENGTH TO TARGET | = 12.9546797 KM |
| FORWARD OVERLAP RATIO | = | 7.1146953 | PCT | SIDE OVERLAP RATIO | = 0. PCT |
| TIME BETWEEN PHOTOS | = | 2.2002697 | SEC | ALPHA | = 4.1428932 DEG. |

| | X | Y | Z | MAGNITUDE (KM) |
|---|---|---|---|---|
| DIRECTION COSINES TO TARGET | -0.88877298 | -0.36888082 | -0.27204692 | 50.34921646 |
| CAMERA AXIS | -0.84152370 | -0.48650100 | -0.23485927 | 50.07524109 |
| C1 | -0.91069970 | -0.40375508 | -0.08722327 | 48.71099827 |
| C2 | -0.77889375 | -0.47767412 | -0.40638892 | 53.36264038 |
| C3 | -0.74421899 | -0.55298516 | -0.37462717 | 53.41470337 |
| C4 | -0.87602492 | -0.47906613 | -0.05546153 | 48.75335693 |

| | X | Y | Z | X DOT | Y DOT | Z DOT |
|---|---|---|---|---|---|---|
| STATE VECTOR (1950.0) | -475.8877335 | -1600.5201874 | -635.6479416 | 1.7383864 | -0.1810442 | -0.7812599 |

LONG 25.0125 DEG
LATI 0.9160 DEG

LONG 24.6223 DEG
LATI -0.4351 DEG

(1) * 42.65771 KM * (2)

LOW RESOLUTION

31.30472 KM 38.57694 KM

(4) * 42.99176 KM * (3)

LONG 24.0491 DEG
LATI 1.2865 DEG

LONG 23.4314 DEG
LATI 0.0109 DEG

LONG 24.4789 DEG
LATI 0.7615 DEG

LONG 24.2660 DEG
LATI 0.1867 DEG

(1) * 18.59538 KM * (2)

HIGH RESOLUTION

4.32689 KM 4.74043 KM

(4) * 18.61382 KM * (3)

LONG 24.3456 DEG
LATI 0.8124 DEG

LONG 24.1198 DEG
LATI 0.2419 DEG

LOW RESOLUTION 53

| INDEX | LONGITUDE | LATITUDE |
|---|---|---|
| 1 | 25.0124965 | 0.9159616 |
| 2 | 24.9804347 | 0.8065096 |
| 3 | 24.9487944 | 0.6982186 |
| 4 | 24.9172416 | 0.5899687 |
| 5 | 24.8854544 | 0.4806387 |
| 6 | 24.8530941 | 0.3690582 |
| 7 | 24.8198023 | 0.2539618 |
| 8 | 24.7851703 | 0.1339255 |
| 9 | 24.7487381 | 0.0072808 |
| 10 | 24.7099402 | -0.1279807 |
| 11 | 24.6680903 | -0.2743576 |
| 12 | 24.6223011 | -0.4350617 |
| 13 | 24.5087216 | -0.3915483 |
| 14 | 24.3988709 | -0.3496604 |
| 15 | 24.2917559 | -0.3090029 |
| 16 | 24.1864789 | -0.2692213 |
| 17 | 24.0822027 | -0.2299930 |
| 18 | 23.9781175 | -0.1910114 |
| 19 | 23.8734295 | -0.1519768 |
| 20 | 23.7673142 | -0.1125905 |
| 21 | 23.6589088 | -0.0725400 |
| 22 | 23.5472717 | -0.0314914 |
| 23 | 23.4313512 | 0.0109237 |
| 24 | 23.5054467 | 0.1624407 |
| 25 | 23.5727882 | 0.3004933 |
| 26 | 23.6348937 | 0.4281017 |
| 27 | 23.6929355 | 0.5476164 |
| 28 | 23.7478561 | 0.6609292 |
| 29 | 23.8004324 | 0.7696078 |
| 30 | 23.8513231 | 0.8749976 |
| 31 | 23.9011149 | 0.9782905 |
| 32 | 23.9503436 | 1.0805923 |
| 33 | 23.9995174 | 1.1829606 |
| 34 | 24.0491486 | 1.2864576 |
| 35 | 24.1423755 | 1.2504915 |
| 36 | 24.2323103 | 1.2158180 |
| 37 | 24.3197687 | 1.1821196 |
| 38 | 24.4054916 | 1.1491102 |
| 39 | 24.4901590 | 1.1165284 |
| 40 | 24.5744181 | 1.0841226 |
| 41 | 24.6589022 | 1.0516510 |
| 42 | 24.7442572 | 1.0188644 |
| 43 | 24.8311491 | 0.9855083 |
| 44 | 24.9202988 | 0.9513070 |

HIGH RESOLUTION 53

| INDEX | LONGITUDE | LATITUDE |
|---|---|---|
| 1 | 24.4788637 | 0.7614918 |
| 2 | 24.4607689 | 0.7126688 |
| 3 | 24.4425609 | 0.6635290 |
| 4 | 24.4241946 | 0.6139580 |
| 5 | 24.4056280 | 0.5638423 |
| 6 | 24.3868179 | 0.5130590 |
| 7 | 24.3677163 | 0.4614834 |
| 8 | 24.3482726 | 0.4089806 |
| 9 | 24.3284364 | 0.3554089 |
| 10 | 24.3081479 | 0.3006111 |
| 11 | 24.2873468 | 0.2444192 |
| 12 | 24.2659640 | 0.1866528 |
| 13 | 24.2526770 | 0.1916816 |
| 14 | 24.2393920 | 0.1967077 |
| 15 | 24.2261131 | 0.2017305 |
| 16 | 24.2128339 | 0.2067498 |
| 17 | 24.1995566 | 0.2117683 |
| 18 | 24.1862776 | 0.2167859 |
| 19 | 24.1729932 | 0.2218018 |
| 20 | 24.1597028 | 0.2268203 |
| 21 | 24.1464057 | 0.2318388 |
| 22 | 24.1330991 | 0.2368590 |
| 23 | 24.1197803 | 0.2418818 |
| 24 | 24.1424897 | 0.2992109 |
| 25 | 24.1645763 | 0.3549777 |
| 26 | 24.1861103 | 0.4093631 |
| 27 | 24.2071631 | 0.4625336 |
| 28 | 24.2277904 | 0.5146419 |
| 29 | 24.2480509 | 0.5658316 |
| 30 | 24.2680004 | 0.6162350 |
| 31 | 24.2876842 | 0.6659784 |
| 32 | 24.3071504 | 0.7151806 |
| 33 | 24.3264470 | 0.7639566 |
| 34 | 24.3456154 | 0.8124185 |
| 35 | 24.3577528 | 0.8077808 |
| 36 | 24.3698792 | 0.8031466 |
| 37 | 24.3819990 | 0.7985157 |
| 38 | 24.3941107 | 0.7938865 |
| 39 | 24.4062190 | 0.7892599 |
| 40 | 24.4183235 | 0.7846325 |
| 41 | 24.4304276 | 0.7800076 |
| 42 | 24.4425323 | 0.7753801 |
| 43 | 24.4546380 | 0.7707535 |
| 44 | 24.4667482 | 0.7661235 |

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* PHOTO FRAME NUMBER 3 OF 8 *
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## FRAME 54

| | YEAR | MONTH | DAY | HOUR | MINUTE | SECOND |
|---|---|---|---|---|---|---|
| GMT | 67 | 2 | 16 | 13 | 50 | 41.599 |

| | | | | | |
|---|---|---|---|---|---|
| LONGITUDE OF NADIR POINT | = | 24.5948658 | DEG | LATITUDE OF NADIR POINT | = 0.8265494 DEG |
| LONG OF CAMERA AXIS INTERSECT | = | 24.4429691 | DEG | LATI OF CAMERA AXIS INTERSECT | = 0.4623474 DEG |
| SPACECRAFT RADIUS | = | 1786.6166687 | KM | SPACECRAFT ALTITUDE | = 48.5266724 KM |
| MEAN ALTITUDE RATE | = | -0.0217105 | KM/SEC | TIME FROM PERIAPSIS | = -42.0833735 SEC |
| HORIZONTAL VELOCITY | = | 1.9143706 | KM/SEC | TRUE ANOMALY | = 357.4154816 DEG |
| SCALE FACTOR (HIGH) | = | 0.0121948 | M/KM | TILT DISTANCE (HIGH) | = 150.3451862 KM |
| SCALE FACTOR (LOW) | = | 0.0015993 | M/KM | TILT DISTANCE (LOW) | = 19.7174015 KM |
| IMAGE MOTION COMPENSATION (V/H) | = | 0.0382733 | RAD/SEC | SWING ANGLE | = 1.7318713 DEG |
| EMISSION ANGLE | = | 14.2402011 | DEG | INCIDENCE ANGLE | = 72.2695663 DEG |
| PHASE ANGLE | = | 67.7562237 | DEG | NORTH DEVIATION ANGLE | = 338.4521828 DEG |
| TILT ANGLE | = | 13.8455951 | DEG | RESOLUTION CONSTANT | = 1.0854622 MTR |
| TILT AZIMUTH | = | 202.6391926 | DEG | SUN AZIMUTH AT PRINCIPAL GND PT | = 91.7126808 DEG |
| SUN ANGLE AT NADIR | = | 72.1490154 | DEG | SUN ARC AT NADIR | = 2188.6687927 KM |
| LONGITUDE DISTANCE TO TARGET | = | 0.0778658 | DEG | LATITUDE DISTANCE TO TARGET | = 0.3765493 DEG |
| LONGITUDE ARC LENGTH TO TARGET | = | 2.3620909 | KM | LATITUDE ARC LENGTH TO TARGET | = 11.4227726 KM |
| FORWARD OVERLAP RATIO | = | 2.8715875 | PCT | SIDE OVERLAP RATIO | = 0. PCT |
| TIME BETWEEN PHOTOS | = | 2.3000479 | SEC | ALPHA | = 3.9984522 DEG. |

| | X | Y | Z | MAGNITUDE (KM) |
|---|---|---|---|---|
| DIRECTION COSINES TO TARGET | -0.86135604 | -0.44627686 | -0.24269886 | 49.94689989 |
| CAMERA AXIS | -0.84152648 | -0.48649623 | -0.23485019 | 50.02130127 |
| C1 | -0.91070200 | -0.40374993 | -0.08722319 | 48.66313171 |
| C2 | -0.77889650 | -0.47766971 | -0.40638885 | 53.31164551 |
| C3 | -0.74422216 | -0.55298094 | -0.37462710 | 53.35043335 |
| C4 | -0.87602764 | -0.47906116 | -0.05546144 | 48.69537354 |

| | X | Y | Z | X DOT | Y DOT | Z DOT |
|---|---|---|---|---|---|---|
| STATE VECTOR (1950.0) | -471.8900833 | -1600.9327853 | -637.4426193 | 1.7393222 | -0.1778801 | -0.7800022 |

LONG 25.1475 DEG
LATI 0.8640 DEG

LONG 24.7574 DEG
LATI -0.4869 DEG

• 42.65347 KM •
(1) (2)

LOW RESOLUTION

31.27010 KM 38.53337 KM

(4) (3)
• 42.90238 KM •

LONG 24.1851 DEG
LATI 1.2338 DEG

LONG 23.5687 DEG
LATI -0.0391 DEG

LONG 24.6140 DEG
LATI 0.7097 DEG

LONG 24.4013 DEG
LATI 0.1354 DEG

• 18.57763 KM •
(1) (2)

HIGH RESOLUTION

4.32214 KM 4.73523 KM

(4) (3)
• 18.59138 KM •

LONG 24.4809 DEG
LATI 0.7606 DEG

LONG 24.2553 DEG
LATI 0.1907 DEG

LOW RESOLUTION 54

| INDEX | LONGITUDE | LATITUDE |
|---|---|---|
| 1 | 25.1474876 | 0.8640223 |
| 2 | 25.1154406 | 0.7545984 |
| 3 | 25.0838110 | 0.6463340 |
| 4 | 25.0522714 | 0.5381062 |
| 5 | 25.0204959 | 0.4287941 |
| 6 | 24.9881473 | 0.3172290 |
| 7 | 24.9548650 | 0.2021454 |
| 8 | 24.9202471 | 0.0821168 |
| 9 | 24.8838229 | -0.0445251 |
| 10 | 24.8450377 | -0.1797851 |
| 11 | 24.8031964 | -0.3261706 |
| 12 | 24.7574186 | -0.4868900 |
| 13 | 24.6438372 | -0.4431299 |
| 14 | 24.5340261 | -0.4010183 |
| 15 | 24.4269915 | -0.3601584 |
| 16 | 24.3218310 | -0.3201916 |
| 17 | 24.2177052 | -0.2807950 |
| 18 | 24.1138122 | -0.2416598 |
| 19 | 24.0093536 | -0.2024835 |
| 20 | 23.9035103 | -0.1629666 |
| 21 | 23.7954221 | -0.1227974 |
| 22 | 23.6841557 | -0.0816421 |
| 23 | 23.5686643 | -0.0391319 |
| 24 | 23.6425769 | 0.1120458 |
| 25 | 23.7097580 | 0.2497971 |
| 26 | 23.7717171 | 0.3771314 |
| 27 | 23.8296275 | 0.4963959 |
| 28 | 23.8844271 | 0.6094757 |
| 29 | 23.9368892 | 0.7179348 |
| 30 | 23.9876726 | 0.8231146 |
| 31 | 24.0373597 | 0.9262061 |
| 32 | 24.0864892 | 1.0283097 |
| 33 | 24.1355658 | 1.1304825 |
| 34 | 24.1851010 | 1.2337857 |
| 35 | 24.2780936 | 1.1979434 |
| 36 | 24.3678305 | 1.1633801 |
| 37 | 24.4551268 | 1.1297773 |
| 38 | 24.5407145 | 1.0968515 |
| 39 | 24.6252739 | 1.0643432 |
| 40 | 24.7094491 | 1.0320023 |
| 41 | 24.7938759 | 0.9995837 |
| 42 | 24.8791947 | 0.9668431 |
| 43 | 24.9660778 | 0.9335238 |
| 44 | 25.0552442 | 0.8993515 |

HIGH RESULUTION 54

| INDEX | LONGITUDE | LATITUDE |
|---|---|---|
| 1 | 24.6139812 | 0.7096934 |
| 2 | 24.5959039 | 0.6609190 |
| 3 | 24.5777116 | 0.6118253 |
| 4 | 24.5593612 | 0.5623030 |
| 5 | 24.5408132 | 0.5122351 |
| 6 | 24.5220189 | 0.4615005 |
| 7 | 24.5029335 | 0.4099761 |
| 8 | 24.4835086 | 0.3575237 |
| 9 | 24.4636912 | 0.3040023 |
| 10 | 24.4434216 | 0.2492566 |
| 11 | 24.4226398 | 0.1931176 |
| 12 | 24.4012761 | 0.1354068 |
| 13 | 24.3880055 | 0.1404466 |
| 14 | 24.3747411 | 0.1454839 |
| 15 | 24.3614798 | 0.1505169 |
| 16 | 24.3482220 | 0.1555473 |
| 17 | 24.3349640 | 0.1605760 |
| 18 | 24.3217039 | 0.1656022 |
| 19 | 24.3084421 | 0.1706301 |
| 20 | 24.2951748 | 0.1756571 |
| 21 | 24.2818992 | 0.1806850 |
| 22 | 24.2686152 | 0.1857137 |
| 23 | 24.2553205 | 0.1907467 |
| 24 | 24.2780013 | 0.2480059 |
| 25 | 24.3000607 | 0.3037044 |
| 26 | 24.3215716 | 0.3580231 |
| 27 | 24.3425977 | 0.4111287 |
| 28 | 24.3632009 | 0.4631739 |
| 29 | 24.3834398 | 0.5143004 |
| 30 | 24.4033639 | 0.5646440 |
| 31 | 24.4230263 | 0.6143268 |
| 32 | 24.4424713 | 0.6634701 |
| 33 | 24.4617450 | 0.7121872 |
| 34 | 24.4808924 | 0.7605902 |
| 35 | 24.4930124 | 0.7559559 |
| 36 | 24.5051231 | 0.7513259 |
| 37 | 24.5172253 | 0.7466985 |
| 38 | 24.5293219 | 0.7420719 |
| 39 | 24.5414159 | 0.7374478 |
| 40 | 24.5535054 | 0.7328255 |
| 41 | 24.5655956 | 0.7282015 |
| 42 | 24.5776854 | 0.7235766 |
| 43 | 24.5897789 | 0.7189508 |
| 44 | 24.6018772 | 0.7143234 |

**********************************
* PHOTO FRAME NUMBER 4 OF 8 *
**********************************

## FRAME 55

| | YEAR | MONTH | DAY | HOUR | MINUTE | SECOND |
|---|---|---|---|---|---|---|
| GMT | 67 | 2 | 16 | 13 | 50 | 43.799 |

| | | | | | |
|---|---|---|---|---|---|
| LONGITUDE OF NADIR POINT | = | 24.7207193 | DEG | LATITUDE OF NADIR POINT | = | 0.7781659 | DEG |
| LONG OF CAMERA AXIS INTERSECT | = | 24.5724816 | DEG | LATI OF CAMERA AXIS INTERSECT | = | 0.4130045 | DEG |
| SPACECRAFT RADIUS | = | 1786.5701141 | KM | SPACECRAFT ALTITUDE | = | 48.4801178 | KM |
| MEAN ALTITUDE RATE | = | -0.0205762 | KM/SEC | TIME FROM PERIAPSIS | = | -39.8827300 | SEC |
| HORIZONTAL VELOCITY | = | 1.9144199 | KM/SEC | TRUE ANOMALY | = | 357.5505905 | DEG |
| SCALE FACTOR (HIGH) | = | 0.0122067 | M/KM | TILT DISTANCE (HIGH) | = | 150.3078899 | MM |
| SCALE FACTOR (LOW) | = | 0.0016009 | M/KM | TILT DISTANCE (LOW) | = | 19.7125131 | MM |
| IMAGE MOTION COMPENSATION (V/H) | = | 0.0383113 | RAD/SEC | SWING ANGLE | = | 1.1674148 | DEG |
| EMISSION ANGLE | = | 14.2364209 | DEG | INCIDENCE ANGLE | = | 72.1583300 | DEG |
| PHASE ANGLE | = | 67.7562256 | DEG | NORTH DEVIATION ANGLE | = | 338.4463005 | DEG |
| TILT ANGLE | = | 13.8422927 | DEG | RESOLUTION CONSTANT | = | 1.0844040 | MTR |
| TILT AZIMUTH | = | 202.0928898 | DEG | SUN AZIMUTH AT PRINCIPAL GND PT | = | 91.6990995 | DEG |
| SUN ANGLE AT NADIR | = | 72.0213833 | DEG | SUN ARC AT NADIR | = | 2184.7969971 | KM |
| LONGITUDE DISTANCE TO TARGET | = | 0.2037194 | DEG | LATITUDE DISTANCE TO TARGET | = | 0.3281959 | DEG |
| LONGITUDE ARC LENGTH TO TARGET | = | 6.1799074 | KM | LATITUDE ARC LENGTH TO TARGET | = | 9.9559511 | KM |
| FORWARD OVERLAP RATIO | = | 6.9207721 | PCT | SIDE OVERLAP RATIO | = | 0. | PCT |
| TIME BETWEEN PHOTOS | = | 2.1996260 | SEC | ALPHA | = | 3.8601328 | DEG. |

| | X | Y | Z | MAGNITUDE (KM) |
|---|---|---|---|---|
| DIRECTION COSINES TO TARGET | -0.82865489 | -0.51779865 | -0.21263967 | 49.91455269 |
| CAMERA AXIS | -0.84152918 | -0.48649158 | -0.23485009 | 49.97253418 |
| C1 | -0.91070423 | -0.40374489 | -0.08722309 | 48.62097168 |
| C2 | -0.77889918 | -0.47766541 | -0.40638877 | 53.26588440 |
| C3 | -0.74422524 | -0.55297683 | -0.37462702 | 53.29200745 |
| C4 | -0.87603030 | -0.47905632 | -0.05546135 | 48.64268494 |

| | X | Y | Z | X DOT | Y DOT | Z DOT |
|---|---|---|---|---|---|---|
| STATE VECTOR (1950.0) | -468.0608788 | -1601.3209534 | -639.1580658 | 1.7402107 | -0.1748500 | -0.7787947 |

LONG 25.2768 DEG
LATI 0.8143 DEG

LONG 24.8868 DEG
LATI -0.5366 DEG

* 42.65191 KM *
(1) (2)

LOW RESOLUTION

31.23900 KM 38.49437 KM

(4) (3)
* 42.81948 KM *

LONG 24.3152 DEG
LATI 1.1834 DEG

LONG 23.7000 DEG
LATI -0.0871 DEG

LONG 24.7433 DEG
LATI 0.6601 DEG

LONG 24.5308 DEG
LATI 0.0863 DEG

* 16.56172 KM *
(1) (2)

HIGH RESOLUTION

4.31787 KM 4.73047 KM

(4) (3)
* 18.57097 KM *

LONG 24.6104 DEG
LATI 0.7113 DEG

LONG 24.3851 DEG
LATI 0.1417 DEG

LOW RESOLUTION 55

| INDEX | LONGITUDE | LATITUDE |
|---|---|---|
| 1 | 25.2767544 | 0.8142951 |
| 2 | 25.2447166 | 0.7048934 |
| 3 | 25.2130973 | 0.5966469 |
| 4 | 25.1815691 | 0.4884336 |
| 5 | 25.1498010 | 0.3791318 |
| 6 | 25.1174605 | 0.2675761 |
| 7 | 25.0841875 | 0.1524985 |
| 8 | 25.0495782 | 0.0324707 |
| 9 | 25.0131629 | -0.0941755 |
| 10 | 24.9743865 | -0.2294465 |
| 11 | 24.9325538 | -0.3758465 |
| 12 | 24.8867829 | -0.5365916 |
| 13 | 24.7731924 | -0.4925907 |
| 14 | 24.6634126 | -0.4502631 |
| 15 | 24.5564461 | -0.4092060 |
| 16 | 24.4513900 | -0.3690624 |
| 17 | 24.3474064 | -0.3295011 |
| 18 | 24.2436895 | -0.2902156 |
| 19 | 24.1394405 | -0.2509019 |
| 20 | 24.0338514 | -0.2112595 |
| 21 | 23.9260592 | -0.1709750 |
| 22 | 23.8151379 | -0.1297147 |
| 23 | 23.7000484 | -0.0871114 |
| 24 | 23.7737899 | 0.0637504 |
| 25 | 23.8408210 | 0.2012208 |
| 26 | 23.9026470 | 0.3283033 |
| 27 | 23.9604344 | 0.4473347 |
| 28 | 24.0151196 | 0.5601984 |
| 29 | 24.0674753 | 0.6684535 |
| 30 | 24.1181583 | 0.7734387 |
| 31 | 24.1677513 | 0.8763431 |
| 32 | 24.2167869 | 0.9782641 |
| 33 | 24.2657731 | 1.0802576 |
| 34 | 24.3152189 | 1.1833798 |
| 35 | 24.4079957 | 1.1476553 |
| 36 | 24.4975512 | 1.1131928 |
| 37 | 24.5846970 | 1.0796804 |
| 38 | 24.6701608 | 1.0468332 |
| 39 | 24.7546220 | 1.0143924 |
| 40 | 24.8387227 | 0.9821103 |
| 41 | 24.9230978 | 0.9497421 |
| 42 | 25.0083904 | 0.9170434 |
| 43 | 25.0952704 | 0.8837582 |
| 44 | 25.1844580 | 0.8496098 |

HIGH RESOLUTION 55

| INDEX | LONGITUDE | LATITUDE |
|---|---|---|
| 1 | 24.7433333 | 0.6630934 |
| 2 | 24.7252705 | 0.6113600 |
| 3 | 24.7070923 | 0.5623098 |
| 4 | 24.6887567 | 0.5128302 |
| 5 | 24.6702230 | 0.4628051 |
| 6 | 24.6514449 | 0.4121165 |
| 7 | 24.6323767 | 0.3606348 |
| 8 | 24.6129680 | 0.3082276 |
| 9 | 24.5931654 | 0.2547515 |
| 10 | 24.5729120 | 0.2000528 |
| 11 | 24.5521467 | 0.1439633 |
| 12 | 24.5308037 | 0.0863020 |
| 13 | 24.5175481 | 0.0913529 |
| 14 | 24.5042999 | 0.0963996 |
| 15 | 24.4910562 | 0.1014428 |
| 16 | 24.4778149 | 0.1064844 |
| 17 | 24.4645767 | 0.1115225 |
| 18 | 24.4513345 | 0.1165597 |
| 19 | 24.4380915 | 0.1215961 |
| 20 | 24.4248455 | 0.1266334 |
| 21 | 24.4115913 | 0.1316690 |
| 22 | 24.3983264 | 0.1367079 |
| 23 | 24.3850543 | 0.1417495 |
| 24 | 24.4077117 | 0.1989446 |
| 25 | 24.4297469 | 0.2545808 |
| 26 | 24.4512331 | 0.3088398 |
| 27 | 24.4722364 | 0.3618865 |
| 28 | 24.4928193 | 0.4138744 |
| 29 | 24.5130358 | 0.4649455 |
| 30 | 24.5329385 | 0.5152327 |
| 31 | 24.5525799 | 0.5648618 |
| 32 | 24.5720048 | 0.6139503 |
| 33 | 24.5912590 | 0.6626146 |
| 34 | 24.6103864 | 0.7109638 |
| 35 | 24.6224916 | 0.7063329 |
| 36 | 24.6345861 | 0.7017063 |
| 37 | 24.6466751 | 0.6970814 |
| 38 | 24.6587584 | 0.6924582 |
| 39 | 24.6708360 | 0.6878359 |
| 40 | 24.6829159 | 0.6832144 |
| 41 | 24.6949914 | 0.6785929 |
| 42 | 24.7070715 | 0.6739715 |
| 43 | 24.7191529 | 0.6693474 |
| 44 | 24.7312388 | 0.6647208 |

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* PHOTO FRAME NUMBER 5 OF 8 *
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## FRAME 56

| | YEAR | MONTH | DAY | HOUR | MINUTE | SECOND |
|---|---|---|---|---|---|---|
| GMT | 67 | 2 | 16 | 13 | 50 | 45.999 |

| | | | | | |
|---|---|---|---|---|---|
| LONGITUDE OF NADIR POINT | = | 24.8465295 | DEG | LATITUDE OF NADIR POINT | = 0.7298578 DEG |
| LONG OF CAMERA AXIS INTERSECT | = | 24.7019348 | DEG | LATI OF CAMERA AXIS INTERSECT | = 0.3636589 DEG |
| SPACECRAFT RADIUS | = | 1786.5261078 | KM | SPACECRAFT ALTITUDE | = 48.4361115 KM |
| MEAN ALTITUDE RATE | = | -0.0194422 | KM/SEC | TIME FROM PERIAPSIS | = -37.6829748 SEC |
| HORIZONTAL VELOCITY | = | 1.9144663 | KM/SEC | TRUE ANOMALY | = 357.6856499 DEG |
| SCALE FACTOR (HIGH) | = | 0.0122179 | M/KM | TILT DISTANCE (HIGH) | = 150.2854252 MM |
| SCALE FACTOR (LOW) | = | 0.0016023 | M/KM | TILT DISTANCE (LOW) | = 19.7095640 MM |
| IMAGE MOTION COMPENSATION (V/H) | = | 0.0383464 | RAD/SEC | SWING ANGLE | = 3.6029526 DEG |
| EMISSION ANGLE | = | 14.2340164 | DEG | INCIDENCE ANGLE | = 72.0271730 DEG |
| PHASE ANGLE | = | 67.7562256 | DEG | NORTH DEVIATION ANGLE | = 338.4406471 DEG |
| TILT ANGLE | = | 13.8403032 | DEG | RESOLUTION CONSTANT | = 1.0834093 MTR |
| TILT AZIMUTH | = | 201.5464783 | DEG | SUN AZIMUTH AT PRINCIPAL GND PT | = 91.6852779 DEG |
| SUN ANGLE AT NADIR | = | 71.8938112 | DEG | SUN ARC AT NADIR | = 2180.9270325 KM |
| LONGITUDE DISTANCE TO TARGET | = | 0.3295295 | DEG | LATITUDE DISTANCE TO TARGET | = 0.2798578 DEG |
| LONGITUDE ARC LENGTH TO TARGET | = | 9.9964076 | KM | LATITUDE ARC LENGTH TO TARGET | = 8.4895958 KM |
| FORWARD OVERLAP RATIO | = | 6.8664115 | PCT | SIDE OVERLAP RATIO | = 0. PCT |
| TIME BETWEEN PHOTOS | = | 2.2002697 | SEC | ALPHA | = 3.7218438 DEG |

| | X | Y | Z | MAGNITUDE (KM) |
|---|---|---|---|---|
| DIRECTION COSINES TO TARGET | -0.79031099 | -0.58526924 | -0.18129662 | 50.22784472 |
| CAMERA AXIS | -0.84153181 | -0.48648707 | -0.23485005 | 49.92669678 |
| C1 | -0.91070641 | -0.40374002 | -0.08722304 | 48.58164578 |
| C2 | -0.77890176 | -0.47766123 | -0.40638873 | 53.22323608 |
| C3 | -0.74422824 | -0.55297284 | -0.37462698 | 53.23672485 |
| C4 | -0.87603287 | -0.47905163 | -0.05546130 | 48.59284973 |

| | X | Y | Z | X DOT | Y DOT | Z DOT |
|---|---|---|---|---|---|---|
| STATE VECTOR (1950.0) | -464.2314224 | -1601.7023010 | -640.8700943 | 1.7410916 | -0.1718203 | -0.7775845 |

LONG 25.4060 DEG
LATI 0.7646 DEG

(1) • 42.65284 KM • (2)

LONG 25.0161 DEG
LATI -0.5864 DEG

LOW RESOLUTION

31.20997 KM 38.45807 KM

(4) • 42.73929 KM • (3)

LONG 24.4453 DEG
LATI 1.1330 DEG

LONG 23.8313 DEG
LATI -0.1351 DEG

LONG 24.8726 DEG
LATI 0.6105 DEG

(1) • 18.54689 KM • (2)

LONG 24.6603 DEG
LATI 0.0372 DEG

HIGH RESOLUTION

4.31387 KM 4.72608 KM

(4) • 18.55166 KM • (3)

LONG 24.7398 DEG
LATI 0.6614 DEG

LONG 24.5147 DEG
LATI 0.0927 DEG

LOW RESOLUTION 56

| INDEX | LONGITUDE | LATITUDE |
|---|---|---|
| 1 | 25.4060035 | 0.7645884 |
| 2 | 25.3739765 | 0.6552012 |
| 3 | 25.3423665 | 0.5469667 |
| 4 | 25.3108437 | 0.4387619 |
| 5 | 25.2790852 | 0.3294653 |
| 6 | 25.2467525 | 0.2179112 |
| 7 | 25.2134879 | 0.1028311 |
| 8 | 25.1788833 | -0.0172061 |
| 9 | 25.1424763 | -0.1438591 |
| 10 | 25.1037049 | -0.2791473 |
| 11 | 25.0618784 | -0.4255737 |
| 12 | 25.0161154 | -0.5863538 |
| 13 | 24.9025066 | -0.5421095 |
| 14 | 24.7927489 | -0.4995617 |
| 15 | 24.6858439 | -0.4583074 |
| 16 | 24.5808880 | -0.4179820 |
| 17 | 24.4770358 | -0.3782550 |
| 18 | 24.3734884 | -0.3388175 |
| 19 | 24.2694442 | -0.2993646 |
| 20 | 24.1640990 | -0.2595941 |
| 21 | 24.0565956 | -0.2191936 |
| 22 | 23.9460115 | -0.1778265 |
| 23 | 23.8313169 | -0.1351293 |
| 24 | 23.9048917 | 0.0154268 |
| 25 | 23.9717762 | 0.1526265 |
| 26 | 24.0334711 | 0.2794632 |
| 27 | 24.0911391 | 0.3982700 |
| 28 | 24.1457155 | 0.5109246 |
| 29 | 24.1979685 | 0.6189833 |
| 30 | 24.2485554 | 0.7237806 |
| 31 | 24.2980556 | 0.8265050 |
| 32 | 24.3469992 | 0.9282492 |
| 33 | 24.3958976 | 1.0300676 |
| 34 | 24.4452562 | 1.1330182 |
| 35 | 24.5378242 | 1.0974073 |
| 36 | 24.6272047 | 1.0630438 |
| 37 | 24.7142050 | 1.0296185 |
| 38 | 24.7995515 | 0.9968482 |
| 39 | 24.8839200 | 0.9644739 |
| 40 | 24.9679534 | 0.9322491 |
| 41 | 25.0522830 | 0.8999286 |
| 42 | 25.1375530 | 0.8672701 |
| 43 | 25.2244341 | 0.8340165 |
| 44 | 25.3136513 | 0.7998894 |

HIGH RESOLUTION 56

| INDEX | LONGITUDE | LATITUDE |
|---|---|---|
| 1 | 24.8726358 | 0.6105028 |
| 2 | 24.8545873 | 0.5618104 |
| 3 | 24.8364241 | 0.5128003 |
| 4 | 24.8181016 | 0.4633592 |
| 5 | 24.7995815 | 0.4133750 |
| 6 | 24.7808194 | 0.3627266 |
| 7 | 24.7617645 | 0.3112867 |
| 8 | 24.7423697 | 0.2589214 |
| 9 | 24.7225835 | 0.2054897 |
| 10 | 24.7023454 | 0.1508336 |
| 11 | 24.6815968 | 0.0947885 |
| 12 | 24.6602705 | 0.0371724 |
| 13 | 24.6470301 | 0.0422353 |
| 14 | 24.6337981 | 0.0472922 |
| 15 | 24.6205711 | 0.0523483 |
| 16 | 24.6073461 | 0.0573983 |
| 17 | 24.5941231 | 0.0624467 |
| 18 | 24.5809009 | 0.0674942 |
| 19 | 24.5676770 | 0.0725409 |
| 20 | 24.5544477 | 0.0775875 |
| 21 | 24.5412138 | 0.0826342 |
| 22 | 24.5279713 | 0.0876817 |
| 23 | 24.5147183 | 0.0927318 |
| 24 | 24.5373509 | 0.1498672 |
| 25 | 24.5593653 | 0.2054453 |
| 26 | 24.5808284 | 0.2596471 |
| 27 | 24.6018124 | 0.3126374 |
| 28 | 24.6223724 | 0.3645707 |
| 29 | 24.6425686 | 0.4155888 |
| 30 | 24.6624513 | 0.4658232 |
| 31 | 24.6820736 | 0.5153992 |
| 32 | 24.7014785 | 0.5644374 |
| 33 | 24.7207139 | 0.6130522 |
| 34 | 24.7398238 | 0.6613510 |
| 35 | 24.7519131 | 0.6567235 |
| 36 | 24.7639954 | 0.6520995 |
| 37 | 24.7760694 | 0.6474772 |
| 38 | 24.7881389 | 0.6428565 |
| 39 | 24.8002057 | 0.6382368 |
| 40 | 24.8122706 | 0.6336170 |
| 41 | 24.8243365 | 0.6289981 |
| 42 | 24.8364046 | 0.6243775 |
| 43 | 24.8484759 | 0.6197543 |
| 44 | 24.8605521 | 0.6151294 |

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* PHOTO FRAME NUMBER 6 OF 8 *
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## FRAME 57

| | YEAR | MONTH | DAY | HOUR | MINUTE | SECOND |
|---|---|---|---|---|---|---|
| GMT | 67 | 2 | 16 | 13 | 50 | 48.199 |

| | | | | | | |
|---|---|---|---|---|---|---|
| LONGITUDE OF NADIR POINT | = | 24.9722788 | DEG | LATITUDE OF NADIR POINT | = | 0.6815376 DEG |
| LONG OF CAMERA AXIS INTERSECT | = | 24.8313122 | DEG | LATI OF CAMERA AXIS INTERSECT | = | 0.3143158 DEG |
| SPACECRAFT RADIUS | = | 1786.4846039 | KM | SPACECRAFT ALTITUDE | = | 48.3946075 KM |
| MEAN ALTITUDE RATE | = | -0.0183087 | KM/SEC | TIME FROM PERIAPSIS | = | -35.4643249 SEC |
| HORIZONTAL VELOCITY | = | 1.9145101 | KM/SEC | TRUE ANOMALY | = | 357.8206482 DEG |
| SCALE FACTOR (HIGH) | = | 0.0122284 | M/KM | TILT DISTANCE (HIGH) | = | 150.2774258 MM |
| SCALE FACTOR (LOW) | = | 0.0016037 | M/KM | TILT DISTANCE (LOW) | = | 19.7085147 MM |
| IMAGE MOTION COMPENSATION (V/H) | = | 0.0383795 | RAD/SEC | SWING ANGLE | = | 0.0386341 DEG |
| EMISSION ANGLE | = | 14.2329487 | DEG | INCIDENCE ANGLE | = | 71.8961010 DEG |
| PHASE ANGLE | = | 67.7562256 | DEG | NORTH DEVIATION ANGLE | = | 338.4352188 DEG |
| TILT ANGLE | = | 13.8395947 | DEG | RESOLUTION CONSTANT | = | 1.0824769 MTR |
| TILT AZIMUTH | = | 201.0001049 | DEG | SUN AZIMUTH AT PRINCIPAL GND PT | = | 91.6712198 DEG |
| SUN ANGLE AT NADIR | = | 71.7663078 | DEG | SUN ARC AT NADIR | = | 2177.0592041 KM |
| LONGITUDE DISTANCE TO TARGET | = | 0.4552789 | DEG | LATITUDE DISTANCE TO TARGET | = | 0.2315376 DEG |
| LONGITUDE ARC LENGTH TO TARGET | = | 13.8110638 | KM | LATITUDE ARC LENGTH TO TARGET | = | 7.0237843 KM |
| FORWARD OVERLAP RATIO | = | 6.8293434 | PCT | SIDE OVERLAP RATIO | = | 0. PCT |
| TIME BETWEEN PHOTOS | = | 2.2002697 | SEC | ALPHA | = | 3.5835818 DEG. |

| | X | Y | Z | MAGNITUDE (KM) |
|---|---|---|---|---|
| DIRECTION COSINES TO TARGET | -0.74731670 | -0.64746542 | -0.14935289 | 50.88003302 |
| CAMERA AXIS | -0.84153444 | -0.48648257 | -0.23484995 | 49.88372803 |
| C1 | -0.91073857 | -0.40373514 | -0.08722293 | 48.54508972 |
| C2 | -0.77890437 | -0.47765706 | -0.40638863 | 53.18363953 |
| C3 | -0.74423124 | -0.55296887 | -0.37462689 | 53.18449402 |
| C4 | -0.87603544 | -0.47904693 | -0.05546121 | 48.54582214 |

| | X | Y | Z | X DOT | Y DOT | Z DOT |
|---|---|---|---|---|---|---|
| STATE VECTOR (1950.0) | -460.4018440 | -1602.0767975 | -642.5786514 | 1.7419650 | -0.1687910 | -0.7763715 |

LONG 25.5352 DEG LONG 25.1454 DEG
LATI 0.7149 DEG LATI -0.6362 DEG

(1) • 42.65622 KM • (2)

LOW RESOLUTION

31.18295 KM 38.42444 KM

(4) • 42.66174 KM • (3)

LONG 24.5752 DEG LONG 23.9625 DEG
LATI 1.0827 DEG LATI -0.1832 DEG

LONG 25.0019 DEG LONG 24.7897 DEG
LATI 0.5609 DEG LATI -0.0120 DEG

(1) • 18.53311 KM • (2)

HIGH RESOLUTION

4.31014 KM 4.72198 KM

(4) • 18.53341 KM • (3)

LONG 24.8692 DEG LONG 24.6443 DEG
LATI 0.6118 DEG LATI 0.0437 DEG

LOW RESOLUTION 57

| INDEX | LONGITUDE | LATITUDE |
|---|---|---|
| 1 | 25.5352206 | 0.7149039 |
| 2 | 25.5032010 | 0.6055253 |
| 3 | 25.4715967 | 0.4972958 |
| 4 | 25.4400823 | 0.3890928 |
| 5 | 25.4083290 | 0.2797961 |
| 6 | 25.3760040 | 0.1682352 |
| 7 | 25.3427441 | 0.0531474 |
| 8 | 25.3081448 | -0.0669026 |
| 9 | 25.2717426 | -0.1935752 |
| 10 | 25.2329767 | -0.3288881 |
| 11 | 25.1911542 | -0.4753479 |
| 12 | 25.1453929 | -0.6361723 |
| 13 | 25.0317593 | -0.5916805 |
| 14 | 24.9220195 | -0.5489124 |
| 15 | 24.8151708 | -0.5074557 |
| 16 | 24.7103040 | -0.4669476 |
| 17 | 24.6065788 | -0.4270533 |
| 18 | 24.5031915 | -0.3874630 |
| 19 | 24.3993483 | -0.3478684 |
| 20 | 24.2942383 | -0.3079690 |
| 21 | 24.1870146 | -0.2674480 |
| 22 | 24.0767610 | -0.2259751 |
| 23 | 23.9624505 | -0.1831823 |
| 24 | 24.0358632 | -0.0329241 |
| 25 | 24.1026070 | 0.1040161 |
| 26 | 24.1641741 | 0.2306162 |
| 27 | 24.2217283 | 0.3492054 |
| 28 | 24.2761958 | 0.4616576 |
| 29 | 24.3283496 | 0.5695268 |
| 30 | 24.3788428 | 0.6741422 |
| 31 | 24.4282517 | 0.7766915 |
| 32 | 24.4771109 | 0.8782658 |
| 33 | 24.5259247 | 0.9799170 |
| 34 | 24.5751970 | 1.0826994 |
| 35 | 24.6675630 | 1.0472003 |
| 36 | 24.7567749 | 1.0129350 |
| 37 | 24.8436363 | 0.9795943 |
| 38 | 24.9288714 | 0.9468981 |
| 39 | 25.0131526 | 0.9145888 |
| 40 | 25.0971222 | 0.8824194 |
| 41 | 25.1814098 | 0.8501459 |
| 42 | 25.2666647 | 0.8175250 |
| 43 | 25.3535552 | 0.7842995 |
| 44 | 25.4428046 | 0.7501947 |

HIGH RESOLUTION 57

| INDEX | LONGITUDE | LATITUDE |
|---|---|---|
| 1 | 25.0018728 | 0.5609250 |
| 2 | 24.9838367 | 0.5122710 |
| 3 | 24.9656854 | 0.4632968 |
| 4 | 24.9473779 | 0.4138941 |
| 5 | 24.9288702 | 0.3639475 |
| 6 | 24.9101202 | 0.3133366 |
| 7 | 24.8910809 | 0.2619352 |
| 8 | 24.8716996 | 0.2096083 |
| 9 | 24.8519273 | 0.1562150 |
| 10 | 24.8317044 | 0.1016008 |
| 11 | 24.8109717 | 0.0455975 |
| 12 | 24.7896597 | -0.0119781 |
| 13 | 24.7764332 | -0.0069042 |
| 14 | 24.7632170 | -0.0018347 |
| 15 | 24.7500036 | 0.0032306 |
| 16 | 24.7367964 | 0.0082927 |
| 17 | 24.7235887 | 0.0133523 |
| 18 | 24.7103846 | 0.0184116 |
| 19 | 24.6971769 | 0.0234677 |
| 20 | 24.6839666 | 0.0285237 |
| 21 | 24.6707518 | 0.0335806 |
| 22 | 24.6575286 | 0.0386375 |
| 23 | 24.6442971 | 0.0436970 |
| 24 | 24.6669059 | 0.1007752 |
| 25 | 24.6888981 | 0.1562986 |
| 26 | 24.7103419 | 0.2104458 |
| 27 | 24.7313037 | 0.2633849 |
| 28 | 24.7518444 | 0.3152662 |
| 29 | 24.7720227 | 0.3662339 |
| 30 | 24.7918863 | 0.4164187 |
| 31 | 24.8114884 | 0.4659461 |
| 32 | 24.8308768 | 0.5149365 |
| 33 | 24.8500934 | 0.5635026 |
| 34 | 24.8691859 | 0.6117544 |
| 35 | 24.8812613 | 0.6071295 |
| 36 | 24.8933299 | 0.6025081 |
| 37 | 24.9053915 | 0.5978874 |
| 38 | 24.9174490 | 0.5932694 |
| 39 | 24.9295044 | 0.5886522 |
| 40 | 24.9415584 | 0.5840341 |
| 41 | 24.9536130 | 0.5794160 |
| 42 | 24.9656699 | 0.5747971 |
| 43 | 24.9777315 | 0.5701756 |
| 44 | 24.9897993 | 0.5655516 |

**********
* PHOTO FRAME NUMBER 7 OF 9 *
**********

# FRAME 58

| | YEAR | MONTH | DAY | HOUR | MINUTE | SECOND |
|---|---|---|---|---|---|---|
| GMT | 67 | 2 | 16 | 13 | 50 | 50.499 |

| | | | | | |
|---|---|---|---|---|---|
| LONGITUDE OF NADIR POINT | = | 25.1038630 | DEG | LATITUDE OF NADIR POINT | = | 0.6309686 | DEG |
| LONG OF CAMERA AXIS INTERSECT | = | 24.9666772 | DEG | LATI OF CAMERA AXIS INTERSECT | = | -0.2626455 | DEG |
| SPACECRAFT RADIUS | = | 1786.4438324 | KM | SPACECRAFT ALTITUDE | = | 48.3538361 | KM |
| MEAN ALTITUDE RATE | = | -0.0171223 | KM/SEC | TIME FROM PERIAPSIS | = | -33.1836766 | SEC |
| HORIZONTAL VELOCITY | = | 1.9145532 | KM/SEC | TRUE ANOMALY | = | 357.9619217 | DEG |
| SCALE FACTOR (HIGH) | = | 0.0122387 | M/KM | TILT DISTANCE (HIGH) | = | 150.2846794 | MM |
| SCALE FACTOR (LOW) | = | 0.0016051 | M/KM | TILT DISTANCE (LOW) | = | 19.7094662 | MM |
| IMAGE MOTION COMPENSATION (V/H) | = | 0.0384117 | RAD/SEC | SWING ANGLE | = | 359.4481277 | DEG |
| EMISSION ANGLE | = | 14.2332770 | DEG | INCIDENCE ANGLE | = | 71.7589636 | DEG |
| PHASE ANGLE | = | 67.7562256 | DEG | NORTH DEVIATION ANGLE | = | 339.4297791 | DEG |
| TILT ANGLE | = | 13.8402371 | DEG | RESOLUTION CONSTANT | = | 1.0815673 | MIR |
| TILT AZIMUTH | = | 200.4282036 | DEG | SUN AZIMUTH AT PRINCIPAL GND PT | = | 91.6562433 | DEG |
| SUN ANGLE AT NADIR | = | 71.6328888 | DEG | SUN ARC AT NADIR | = | 2173.0118713 | KM |
| LONGITUDE DISTANCE TO TARGET | = | 0.5868630 | DEG | LATITUDE DISTANCE TO TARGET | = | 0.1809686 | DEG |
| LONGITUDE ARC LENGTH TO TARGET | = | 17.8027210 | KM | LATITUDE ARC LENGTH TO TARGET | = | 5.4897534 | KM |
| FORWARD OVERLAP RATIO | = | 2.4239968 | PCT | SIDE OVERLAP RATIO | = | 0. | PCT |
| TIME BETWEEN PHOTOS | = | 2.3000479 | SEC | ALPHA | = | 3.4388674 | DEG. |

| DIRECTION COSINES TO TARGET | X | Y | Z | MAGNITUDE (KM) |
|---|---|---|---|---|
| CAMERA AXIS | -0.69862741 | -0.70601681 | -0.11600506 | 51.91132927 |
| C1 | -0.84153727 | -0.48647769 | -0.23484989 | 49.84181213 |
| C2 | -0.91071092 | -0.40372986 | -0.08722286 | 48.50981140 |
| C3 | -0.77890716 | -0.47765255 | -0.40638859 | 53.14546204 |
| C4 | -0.74423447 | -0.55296454 | -0.37462684 | 53.13314819 |
| | -0.87603822 | -0.47904186 | -0.05546113 | 48.49957275 |

| | X | Y | Z | X DOT | Y DOT | Z DOT |
|---|---|---|---|---|---|---|
| STATE VECTOR (1950.0) | -456.3924942 | -1602.4615326 | -644.3636398 | 1.7428711 | -0.1656202 | -0.7750987 |

LONG 25.6705 DEG
LATI 0.6629 DEG

LONG 25.2807 DEG
LATI -0.6884 DEG

42.66240 KM

(1) (2)

LOW RESOLUTION

31.15682 KM 38.39207 KM

(4) (3)

42.58338 KM

LONG 24.7111 DEG
LATI 1.0301 DEG

LONG 24.0396 DEG
LATI -0.2335 DEG

LONG 25.1371 DEG
LATI 0.5090 DEG

LONG 24.9250 DEG
LATI -0.0635 DEG

18.51984 KM

(1) (2)

HIGH RESOLUTION

4.30654 KM 4.71802 KM

(4) (3)

18.51548 KM

LONG 25.0045 DEG
LATI 0.5596 DEG

LONG 24.7799 DEG
LATI -0.0377 DEG

LOW RESOLUTION 58

| INDEX | LONGITUDE | LATITUDE |
|---|---|---|
| 1 | 25.6704636 | 0.6629117 |
| 2 | 25.6384487 | 0.5535347 |
| 3 | 25.6068511 | 0.4453044 |
| 4 | 25.5753431 | 0.3370963 |
| 5 | 25.5435953 | 0.2277911 |
| 6 | 25.5112734 | 0.1162199 |
| 7 | 25.4780166 | 0.0011131 |
| 8 | 25.4434240 | -0.1189571 |
| 9 | 25.4070234 | -0.2456571 |
| 10 | 25.3682592 | -0.3810033 |
| 11 | 25.3264394 | -0.5275083 |
| 12 | 25.2806797 | -0.6883900 |
| 13 | 25.1670117 | -0.6436377 |
| 14 | 25.0572827 | -0.6006340 |
| 15 | 24.9504838 | -0.5589647 |
| 16 | 24.8457046 | -0.5182611 |
| 17 | 24.7421041 | -0.4781909 |
| 18 | 24.6388779 | -0.4384367 |
| 19 | 24.5352342 | -0.3986926 |
| 20 | 24.4303651 | -0.3586549 |
| 21 | 24.3234289 | -0.3180093 |
| 22 | 24.2135084 | -0.2764220 |
| 23 | 24.0995922 | -0.2335259 |
| 24 | 24.1728413 | -0.0835665 |
| 25 | 24.2394400 | 0.0531073 |
| 26 | 24.3008780 | 0.1794666 |
| 27 | 24.3583143 | 0.2978364 |
| 28 | 24.4126766 | 0.4100854 |
| 29 | 24.4647298 | 0.5177625 |
| 30 | 24.5151255 | 0.6221969 |
| 31 | 24.5644460 | 0.7245687 |
| 32 | 24.6132154 | 0.8259705 |
| 33 | 24.6619408 | 0.9274543 |
| 34 | 24.7111320 | 1.0300685 |
| 35 | 24.8032908 | 0.9946838 |
| 36 | 24.8923316 | 0.9605175 |
| 37 | 24.9790547 | 0.9272639 |
| 38 | 25.0641797 | 0.8946429 |
| 39 | 25.1483741 | 0.8623985 |
| 40 | 25.2322834 | 0.8302846 |
| 41 | 25.3165379 | 0.7980581 |
| 42 | 25.4017799 | 0.7654755 |
| 43 | 25.4886820 | 0.7322782 |
| 44 | 25.5779753 | 0.6981922 |

HIGH RESOLUTION 58

| INDEX | LONGITUDE | LATITUDE |
|---|---|---|
| 1 | 25.1371017 | 0.5090361 |
| 2 | 25.1190782 | 0.4604162 |
| 3 | 25.1009383 | 0.4114779 |
| 4 | 25.0826437 | 0.3621119 |
| 5 | 25.0641487 | 0.3122011 |
| 6 | 25.0454116 | 0.2616270 |
| 7 | 25.0263839 | 0.2102622 |
| 8 | 25.0070171 | 0.1579746 |
| 9 | 24.9872580 | 0.1046189 |
| 10 | 24.9670513 | 0.0500431 |
| 11 | 24.9463320 | -0.0059217 |
| 12 | 24.9250350 | -0.0634567 |
| 13 | 24.9118242 | -0.0583708 |
| 14 | 24.8986206 | -0.0532891 |
| 15 | 24.8854232 | -0.0482117 |
| 16 | 24.8722317 | -0.0431386 |
| 17 | 24.8590424 | -0.0380672 |
| 18 | 24.8458533 | -0.0329983 |
| 19 | 24.8326643 | -0.0279303 |
| 20 | 24.8194718 | -0.0228641 |
| 21 | 24.8062751 | -0.0177969 |
| 22 | 24.7930715 | -0.0127281 |
| 23 | 24.7798607 | -0.0076590 |
| 24 | 24.8024478 | 0.0493652 |
| 25 | 24.8244169 | 0.1048323 |
| 26 | 24.8458407 | 0.1589274 |
| 27 | 24.8667824 | 0.2118153 |
| 28 | 24.8873048 | 0.2636461 |
| 29 | 24.9074607 | 0.3145635 |
| 30 | 24.9273074 | 0.3646996 |
| 31 | 24.9468911 | 0.4141801 |
| 32 | 24.9662616 | 0.4631227 |
| 33 | 24.9854624 | 0.5116426 |
| 34 | 25.0045357 | 0.5598475 |
| 35 | 25.0165970 | 0.5552252 |
| 36 | 25.0286543 | 0.5506054 |
| 37 | 25.0407016 | 0.5459874 |
| 38 | 25.0527477 | 0.5413710 |
| 39 | 25.0647917 | 0.5367555 |
| 40 | 25.0768342 | 0.5321392 |
| 41 | 25.0888789 | 0.5275237 |
| 42 | 25.1009269 | 0.5229048 |
| 43 | 25.1129768 | 0.5182841 |
| 44 | 25.1250355 | 0.5136618 |

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* PHOTO FRAME NUMBER 8 OF 8 *
**********

## FRAME 59

| | YEAR | MONTH | DAY | HOUR | MINUTE | SECOND |
|---|---|---|---|---|---|---|
| GMT | 67 | 2 | 16 | 13 | 50 | 52.699 |

| | | | | | |
|---|---|---|---|---|---|
| LONGITUDE OF NADIR POINT | = | 25.2296188 DEG | LATITUDE OF NADIR POINT | = | 0.5826373 DEG |
| LONG OF CAMERA AXIS INTERSECT | = | 25.0960364 DEG | LATI OF CAMERA AXIS INTERSECT | = | 0.2132479 DEG |
| SPACECRAFT RADIUS | = | 1786.4074249 KM | SPACECRAFT ALTITUDE | = | 48.3174286 KM |
| MEAN ALTITUDE RATE | = | -0.0159884 KM/SEC | TIME FROM PERIAPSIS | = | -30.9848723 SEC |
| HORIZONTAL VELOCITY | = | 1.9145918 KM/SEC | TRUE ANOMALY | = | 358.0969391 DEG |
| SCALE FACTOR (HIGH) | = | 0.0122478 M/KM | TILT DISTANCE (HIGH) | = | 15[illegible].3063793 MM |
| SCALE FACTOR (LOW) | = | 0.0016063 M/KM | TILT DISTANCE (LOW) | = | 19.7123122 MM |
| IMAGE MOTION COMPENSATION (V/H) | = | 0.0384461 RAD/SEC | SWING ANGLE | = | 358.8838043 DEG |
| EMISSION ANGLE | = | 14.2349592 DEG | INCIDENCE ANGLE | = | 71.6279297 DEG |
| PHASE ANGLE | = | 67.7562284 DEG | NORTH DEVIATION ANGLE | = | 338.4248085 DEG |
| TILT ANGLE | = | 13.8421589 DEG | RESOLUTION CONSTANT | = | 1.0807619 MTR |
| TILT AZIMUTH | = | 199.8816471 DEG | SUN AZIMUTH AT PRINCIPAL GND PT | = | 91.6416788 DEG |
| SUN ANGLE AT NADIR | = | 71.5053940 DEG | SUN ARC AT NADIR | = | 2169.1442566 KM |
| LONGITUDE DISTANCE TO TARGET | = | 0.7126188 DEG | LATITUDE DISTANCE TO TARGET | = | 0.1326373 DEG |
| LONGITUDE ARC LENGTH TO TARGET | = | 21.6175723 KM | LATITUDE ARC LENGTH TO TARGET | = | 4.0236054 KM |
| FORWARD OVERLAP RATIO | = | 6.6759121 PCT | SIDE OVERLAP RATIO | = | 0. PCT |
| TIME BETWEEN PHOTOS | = | 2.1996260 SEC | ALPHA | = | 3.3005328 DEG. |

| | X | Y | Z | MAGNITUDE (KM) |
|---|---|---|---|---|
| DIRECTION COSINES TO TARGET | -0.64987482 | -0.75529067 | -0.08484522 | 53.21165848 |
| CAMERA AXIS | -0.84153993 | -0.48647313 | -0.23484981 | 49.80465698 |
| C1 | -0.91071311 | -0.40372492 | -0.08722278 | 48.47892761 |
| C2 | -0.77890979 | -0.47764832 | -0.40638850 | 53.11207561 |
| C3 | -0.74423750 | -0.55296050 | -0.37462676 | 53.08718872 |
| C4 | -0.87604082 | -0.47903712 | -0.06546105 | 48.45823669 |

| | X | Y | Z | X DOT | Y DOT | Z DOT |
|---|---|---|---|---|---|---|
| STATE VECTOR (1950.0) | -452.5593210 | -1602.8224030 | -646.0667191 | 1.7437297 | -0.1625891 | -0.7738793 |

LONG 25.7997 DEG
LATI 0.6132 DEG

LONG 25.4103 DEG
LATI -0.7384 DEG

(1) • 42.67384 KM • (2)

LOW RESOLUTION

31.13391 KM 38.36386 KM

(4) • 42.51118 KM • (3)

LONG 24.8410 DEG
LATI 0.9798 DEG

LONG 24.2306 DEG
LATI -0.2817 DEG

LONG 25.2663 DEG
LATI 0.4594 DEG

LONG 25.0544 DEG
LATI -0.1127 DEG

(1) • 18.50823 KM • (2)

HIGH RESOLUTION

4.30336 KM 4.71455 KM

(4) • 18.49942 KM • (3)

LONG 25.1339 DEG
LATI 0.5102 DEG

LONG 24.9094 DEG
LATI -0.0568 DEG

LOW RESOLUTION 59

| INDEX | LONGITUDE | LATITUDE |
|---|---|---|
| 1 | 25.7997475 | 0.6132229 |
| 2 | 25.7677391 | 0.5038434 |
| 3 | 25.7361453 | 0.3956054 |
| 4 | 25.7046399 | 0.2873862 |
| 5 | 25.6728933 | 0.1780664 |
| 6 | 25.6405749 | 0.0664774 |
| 7 | 25.6073227 | -0.0486531 |
| 8 | 25.5727293 | -0.1687492 |
| 9 | 25.5363307 | -0.2954825 |
| 10 | 25.4975674 | -0.4308722 |
| 11 | 25.4557474 | -0.5774276 |
| 12 | 25.4099865 | -0.7383742 |
| 13 | 25.2962782 | -0.6933683 |
| 14 | 25.1865525 | -0.6501375 |
| 15 | 25.0797939 | -0.6082608 |
| 16 | 24.9750919 | -0.5673701 |
| 17 | 24.8716049 | -0.5271275 |
| 18 | 24.7685251 | -0.4872153 |
| 19 | 24.6650648 | -0.4473270 |
| 20 | 24.5604203 | -0.4071561 |
| 21 | 24.4537458 | -0.3663893 |
| 22 | 24.3441381 | -0.3246910 |
| 23 | 24.2305875 | -0.2816949 |
| 24 | 24.3036859 | -0.1320122 |
| 25 | 24.3701518 | 0.0044154 |
| 26 | 24.4314711 | 0.1305556 |
| 27 | 24.4887979 | 0.2487230 |
| 28 | 24.5430608 | 0.3607842 |
| 29 | 24.5950201 | 0.4682837 |
| 30 | 24.6453288 | 0.5725491 |
| 31 | 24.6945651 | 0.6747603 |
| 32 | 24.7432530 | 0.7760051 |
| 33 | 24.7919004 | 0.8773335 |
| 34 | 24.8410125 | 0.9797949 |
| 35 | 24.9329808 | 0.9445153 |
| 36 | 25.0218666 | 0.9104420 |
| 37 | 25.1084621 | 0.8772695 |
| 38 | 25.1934855 | 0.8447185 |
| 39 | 25.2776055 | 0.8125347 |
| 40 | 25.3614621 | 0.7804712 |
| 41 | 25.4456873 | 0.7482882 |
| 42 | 25.5309236 | 0.7157389 |
| 43 | 25.6178465 | 0.6825673 |
| 44 | 25.7071841 | 0.6484983 |

HIGH RESOLUTION 59

| INDEX | LONGITUDE | LATITUDE |
|---|---|---|
| 1 | 25.2663388 | 0.4594378 |
| 2 | 25.2483253 | 0.4108495 |
| 3 | 25.2301970 | 0.3619428 |
| 4 | 25.2119136 | 0.3126075 |
| 5 | 25.1934299 | 0.2627292 |
| 6 | 25.1747031 | 0.2121866 |
| 7 | 25.1556880 | 0.1608535 |
| 8 | 25.1363344 | 0.1085983 |
| 9 | 25.1165872 | 0.0552776 |
| 10 | 25.0963922 | 0.0007338 |
| 11 | 25.0756850 | -0.0551973 |
| 12 | 25.0544031 | -0.1126938 |
| 13 | 25.0412025 | -0.1075960 |
| 14 | 25.0280135 | -0.1025032 |
| 15 | 25.0148289 | -0.0974139 |
| 16 | 25.0016515 | -0.0923288 |
| 17 | 24.9884775 | -0.0872463 |
| 18 | 24.9753029 | -0.0821672 |
| 19 | 24.9621305 | -0.0770889 |
| 20 | 24.9489548 | -0.0720124 |
| 21 | 24.9357750 | -0.0669341 |
| 22 | 24.9225891 | -0.0618567 |
| 23 | 24.9093950 | -0.0567785 |
| 24 | 24.9319632 | 0.0001952 |
| 25 | 24.9539135 | 0.0556165 |
| 26 | 24.9753187 | 0.1096647 |
| 27 | 24.9962430 | 0.1625047 |
| 28 | 25.0167458 | 0.2142921 |
| 29 | 25.0368862 | 0.2651650 |
| 30 | 25.0567172 | 0.3152576 |
| 31 | 25.0762854 | 0.3646945 |
| 32 | 25.0956392 | 0.4135944 |
| 33 | 25.1148221 | 0.4620725 |
| 34 | 25.1338811 | 0.5102356 |
| 35 | 25.1459312 | 0.5056158 |
| 36 | 25.1579745 | 0.5009978 |
| 37 | 25.1700120 | 0.4963823 |
| 38 | 25.1820467 | 0.4917668 |
| 39 | 25.1940806 | 0.4871530 |
| 40 | 25.2061143 | 0.4825375 |
| 41 | 25.2181487 | 0.4779228 |
| 42 | 25.2301853 | 0.4733048 |
| 43 | 25.2422292 | 0.4686859 |
| 44 | 25.2542803 | 0.4640635 |

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* PHOTO FRAME NUMBER 1 OF 8 *
**********

## FRAME 60

| GMT | YEAR | MONTH | DAY | HOUR | MINUTE | SECOND |
|---|---|---|---|---|---|---|
| | 67 | 2 | 16 | 17 | 19 | 37.999 |

| | | | | | | |
|---|---|---|---|---|---|---|
| LONGITUDE OF NADIR POINT | = | 24.0579948 | DEG | LATITUDE OF NADIR POINT | = | 0.2015062 DEG |
| LONG OF CAMERA AXIS INTERSECT | = | 24.1573024 | DEG | LATI OF CAMERA AXIS INTERSECT | = | 0.5750379 DEG |
| SPACECRAFT RADIUS | = | 1785.8854980 | KM | SPACECRAFT ALTITUDE | = | 47.7555017 KM |
| MEAN ALTITUDE RATE | = | -0.0096465 | KM/SEC | TIME FROM PERIAPSIS | = | -18.6753952 SEC |
| HORIZONTAL VELOCITY | = | 1.9150600 | KM/SEC | TRUE ANOMALY | = | 358.8524857 DEG |
| SCALE FACTOR (HIGH) | = | 0.0125164 | M/KM | TILT DISTANCE (HIGH) | = | 119.9075375 MM |
| SCALE FACTOR (LOW) | = | 0.0016415 | M/KM | TILT DISTANCE (LOW) | = | 15.7255737 MM |
| IMAGE MOTION COMPENSATION (V/H) | = | 0.0392948 | RAD/SEC | SWING ANGLE | = | 177.5903358 DEG |
| EMISSION ANGLE | = | 11.4307070 | DEG | INCIDENCE ANGLE | = | 70.8133125 DEG |
| PHASE ANGLE | = | 74.4742556 | DEG | NORTH DEVIATION ANGLE | = | 338.5473061 DEG |
| TILT ANGLE | = | 11.1208278 | DEG | RESOLUTION CONSTANT | = | 1.0575727 MTR |
| TILT AZIMUTH | = | 18.6910126 | DEG | SUN AZIMUTH AT PRINCIPAL GND PT | = | 91.7772417 DEG |
| SUN ANGLE AT NADIR | = | 70.9037352 | DEG | SUN ARC AT NADIR | = | 2150.8927002 KM |
| LONGITUDE DISTANCE TO TARGET | = | -0.4590051 | DEG | LATITUDE DISTANCE TO TARGET | = | -0.1694938 DEG |
| LONGITUDE ARC LENGTH TO TARGET | = | -13.9241008 | KM | LATITUDE ARC LENGTH TO TARGET | = | -5.1113244 KM |
| FORWARD OVERLAP RATIO | = | 0. | PCT | SIDE OVERLAP RATIO | = | 0. PCT |
| TIME BETWEEN PHOTOS | = | 0. | SEC | ALPHA | = | -4.0148706 DEG. |

| | X | Y | Z | MAGNITUDE (KM) |
|---|---|---|---|---|
| DIRECTION COSINES TO TARGET | -0.98593896 | -0.13583916 | 0.09732466 | 50.10443783 |
| CAMERA AXIS | -0.92199375 | -0.34392606 | 0.17788303 | 48.73606873 |
| C1 | -0.91886571 | -0.22984233 | 0.32071529 | 51.43780518 |
| C2 | -0.92859442 | -0.37108568 | -0.00279547 | 47.83438110 |
| C3 | -0.89430331 | -0.44651373 | 0.02910486 | 47.86981201 |
| C4 | -0.88457461 | -0.30527038 | 0.35261562 | 51.47888184 |

| | X | Y | Z | X DOT | Y DOT | Z DOT |
|---|---|---|---|---|---|---|
| STATE VECTOR (1950.0) | -429.9707146 | -1604.2654724 | -656.3874817 | 1.7488060 | -0.1441071 | -0.7671108 |

LONG 24.9810 DEG
LATI 1.0377 DEG

(1)

40.85218 KM

LONG 24.4124 DEG
LATI -0.1832 DEG

(2)

LOW RESOLUTION

36.66598 KM

31.05680 KM

(4)

41.10824 KM

(3)

LONG 23.8552 DEG
LATI 1.4783 DEG

LONG 23.4564 DEG
LATI 0.1831 DEG

LONG 24.3373 DEG
LATI 0.8331 DEG

(1)

17.88343 KM

LONG 24.1206 DEG
LATI 0.2848 DEG

(2)

HIGH RESOLUTION

4.56895 KM

4.24873 KM

(4)

17.89778 KM

(3)

LONG 24.1969 DEG
LATI 0.8877 DEG

LONG 23.9899 DEG
LATI 0.3352 DEG

LOW RESOLUTION 60

| INDEX | LONGITUDE | LATITUDE |
|---|---|---|
| 1 | 24.9809771 | 1.0376679 |
| 2 | 24.9154794 | 0.8983372 |
| 3 | 24.8553228 | 0.7700688 |
| 4 | 24.7993133 | 0.6503851 |
| 5 | 24.7465048 | 0.5373122 |
| 6 | 24.6961212 | 0.4292262 |
| 7 | 24.6475093 | 0.3247507 |
| 8 | 24.6000988 | 0.2226744 |
| 9 | 24.5533717 | 0.1218924 |
| 10 | 24.5068393 | 0.0213588 |
| 11 | 24.4600210 | -0.0799696 |
| 12 | 24.4124238 | -0.1831583 |
| 13 | 24.3209310 | -0.1479385 |
| 14 | 24.2324605 | -0.1139164 |
| 15 | 24.1462305 | -0.0807883 |
| 16 | 24.0615249 | -0.0482758 |
| 17 | 23.9776800 | -0.0161252 |
| 18 | 23.8940611 | 0.0159126 |
| 19 | 23.8100357 | 0.0480726 |
| 20 | 23.7249603 | 0.0806048 |
| 21 | 23.6381612 | 0.1137628 |
| 22 | 23.5489063 | 0.1478249 |
| 23 | 23.4563830 | 0.1830986 |
| 24 | 23.4904127 | 0.2921545 |
| 25 | 23.5237706 | 0.3993150 |
| 26 | 23.5568078 | 0.5057098 |
| 27 | 23.5898702 | 0.6124374 |
| 28 | 23.6232989 | 0.7206123 |
| 29 | 23.6574528 | 0.8314073 |
| 30 | 23.6927223 | 0.9461152 |
| 31 | 23.7295516 | 1.0662087 |
| 32 | 23.7684560 | 1.1934261 |
| 33 | 23.8100643 | 1.3298899 |
| 34 | 23.8551602 | 1.4782672 |
| 35 | 23.9039862 | 1.4348887 |
| 36 | 24.0689549 | 1.3932092 |
| 37 | 24.1710377 | 1.3528257 |
| 38 | 24.2711031 | 1.3133830 |
| 39 | 24.3699598 | 1.2745585 |
| 40 | 24.4683714 | 1.2360465 |
| 41 | 24.5670927 | 1.1975498 |
| 42 | 24.6668839 | 1.1587791 |
| 43 | 24.7685409 | 1.1194279 |
| 44 | 24.8729231 | 1.0791741 |

HIGH RESOLUTION 60

| INDEX | LONGITUDE | LATITUDE |
|---|---|---|
| 1 | 24.3373125 | 0.8330910 |
| 2 | 24.3158922 | 0.7789370 |
| 3 | 24.2949815 | 0.7260602 |
| 4 | 24.2745161 | 0.6743044 |
| 5 | 24.2544398 | 0.6235228 |
| 6 | 24.2346959 | 0.5735796 |
| 7 | 24.2152379 | 0.5243502 |
| 8 | 24.1960135 | 0.4757116 |
| 9 | 24.1769829 | 0.4275510 |
| 10 | 24.1580966 | 0.3797560 |
| 11 | 24.1393158 | 0.3322212 |
| 12 | 24.1205978 | 0.2848394 |
| 13 | 24.1087112 | 0.2894173 |
| 14 | 24.0968308 | 0.2939918 |
| 15 | 24.0849552 | 0.2985663 |
| 16 | 24.0730805 | 0.3031383 |
| 17 | 24.0612068 | 0.3077120 |
| 18 | 24.0493340 | 0.3122848 |
| 19 | 24.0374584 | 0.3168584 |
| 20 | 24.0255785 | 0.3214338 |
| 21 | 24.0136902 | 0.3260118 |
| 22 | 24.0017967 | 0.3305922 |
| 23 | 23.9898963 | 0.3351762 |
| 24 | 24.0077949 | 0.3829132 |
| 25 | 24.0257523 | 0.4308073 |
| 26 | 24.0438037 | 0.4789644 |
| 27 | 24.0619934 | 0.5274946 |
| 28 | 24.0803611 | 0.5765064 |
| 29 | 24.0989501 | 0.6261157 |
| 30 | 24.1178079 | 0.6764457 |
| 31 | 24.1369791 | 0.7276243 |
| 32 | 24.1565175 | 0.7797873 |
| 33 | 24.1764779 | 0.8330816 |
| 34 | 24.1969178 | 0.8876667 |
| 35 | 24.2097006 | 0.8826901 |
| 36 | 24.2224741 | 0.8777186 |
| 37 | 24.2352419 | 0.8727522 |
| 38 | 24.2480016 | 0.8677892 |
| 39 | 24.2607596 | 0.8628296 |
| 40 | 24.2735133 | 0.8578709 |
| 41 | 24.2862666 | 0.8529156 |
| 42 | 24.2990205 | 0.8479594 |
| 43 | 24.3117793 | 0.8430050 |
| 44 | 24.3245416 | 0.8380488 |

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* PHOTO FRAME NUMBER 2 OF 8 *
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## FRAME 61

| | YEAR | MONTH | DAY | HOUR | MINUTE | SECOND |
|---|---|---|---|---|---|---|
| GMT | 67 | 2 | 16 | 17 | 19 | 40.099 |

| | | | | | |
|---|---|---|---|---|---|
| LONGITUDE OF NADIR POINT | = | 24.1780739 | DEG | LATITUDE OF NADIR POINT | = | 0.2352949 | DEG |
| LONG OF CAMERA AXIS INTERSECT | = | 24.2906528 | DEG | LATI OF CAMERA AXIS INTERSECT | = | 0.5274323 | DEG |
| SPACECRAFT RADIUS | = | 1785.8663788 | KM | SPACECRAFT ALTITUDE | = | 47.7763824 | KM |
| MEAN ALTITUDE RATE | = | -0.0085626 | KM/SEC | TIME FROM PERIAPSIS | = | -16.5767899 | SEC |
| HORIZONTAL VELOCITY | = | 1.9150801 | KM/SEC | TRUE ANOMALY | = | 358.9814262 | DEG |
| SCALE FACTOR (HIGH) | = | 0.0125216 | M/KM | TILT DISTANCE (HIGH) | = | 119.6582373 | MM |
| SCALE FACTOR (LOW) | = | 0.0016422 | M/KM | TILT DISTANCE (LOW) | = | 15.7191131 | MM |
| IMAGE MOTION COMPENSATION (V/H) | = | 0.0393116 | RAD/SEC | SWING ANGLE | = | 178.2585239 | DEG |
| EMISSION ANGLE | = | 11.4259974 | DEG | INCIDENCE ANGLE | = | 73.6682591 | DEG |
| PHASE ANGLE | = | 74.4742565 | DEG | NORTH DEVIATION ANGLE | = | 338.5492859 | DEG |
| TILT ANGLE | = | 11.1163694 | DEG | RESOLUTION CONSTANT | = | 1.0571330 | MTR |
| TILT AZIMUTH | = | 19.3472524 | DEG | SUN AZIMUTH AT PRINCIPAL GND PT | = | 91.7631493 | DEG |
| SUN ANGLE AT NADIR | = | 70.7820673 | DEG | SUN ARC AT NADIR | = | 2147.2018433 | KM |
| LONGITUDE DISTANCE TO TARGET | = | -0.3389261 | DEG | LATITUDE DISTANCE TO TARGET | = | -0.2147051 | DEG |
| LONGITUDE ARC LENGTH TO TARGET | = | -10.2814558 | KM | LATITUDE ARC LENGTH TO TARGET | = | -6.5131640 | KM |
| FORWARD OVERLAP RATIO | = | 8.8846663 | PCT | SIDE OVERLAP RATIO | = | 0. | PCT |
| TIME BETWEEN PHOTOS | = | 2.1004915 | SEC | ALPHA | = | -4.1389186 | DEG. |

| | X | Y | Z | MAGNITUDE (KM) |
|---|---|---|---|---|
| DIRECTION COSINES TO TARGET | -0.96991633 | -0.20705932 | 0.12801862 | 49.34347200 |
| CAMERA AXIS | -0.92199554 | -0.34392126 | 0.17788312 | 48.71580505 |
| C1 | -0.91986689 | -0.22983756 | 0.32071538 | 51.42208862 |
| C2 | -0.92859636 | -0.37108085 | -0.00279538 | 47.81938171 |
| C3 | -0.89430563 | -0.44650907 | 0.02910496 | 47.84497070 |
| C4 | -0.88457615 | -0.30526577 | 0.35261570 | 51.45175171 |

| | X | Y | Z | X DOT | Y DOT | Z DOT |
|---|---|---|---|---|---|---|
| STATE VECTOR (1950.0) | -426.2991600 | -1604.5648956 | -657.9963989 | 1.7495789 | -0.1412080 | -0.7659238 |

LONG 25.1048 DEG
LATI 0.9905 DEG

LONG 24.5359 DEG
LATI -0.2308 DEG

(1) • 40.87042 KM • (2)

LOW RESOLUTION

36.64956 KM 31.04319 KM

(4) • 41.05534 KM • (3)

LONG 23.9789 DEG
LATI 1.4292 DEG

LONG 23.5805 DEG
LATI 0.1357 DEG

LONG 24.4606 DEG
LATI 0.7854 DEG

LONG 24.2440 DEG
LATI 0.2374 DEG

(1) • 17.87798 KM • (2)

HIGH RESOLUTION

4.56695 KM 4.24689 KM

(4) • 17.88833 KM • (3)

LONG 24.3202 DEG
LATI 0.8399 DEG

LONG 24.1133 DEG
LATI 0.2877 DEG

LOW RESOLUTION 61

| INDEX | LONGITUDE | LATITUDE |
|---|---|---|
| 1 | 25.1048255 | 0.9905302 |
| 2 | 25.0392766 | 0.8511244 |
| 3 | 24.9790766 | 0.7227911 |
| 4 | 24.9230282 | 0.6030519 |
| 5 | 24.8701870 | 0.4899278 |
| 6 | 24.8197722 | 0.3817956 |
| 7 | 24.7711329 | 0.2772783 |
| 8 | 24.7236962 | 0.1751636 |
| 9 | 24.6769464 | 0.0743466 |
| 10 | 24.6303902 | -0.0262245 |
| 11 | 24.5835514 | -0.1275820 |
| 12 | 24.5359342 | -0.2308015 |
| 13 | 24.4443693 | -0.1955073 |
| 14 | 24.3558581 | -0.1614221 |
| 15 | 24.2696090 | -0.1282411 |
| 16 | 24.1849101 | -0.0956875 |
| 17 | 24.1010964 | -0.0635028 |
| 18 | 24.0175271 | -0.0314436 |
| 19 | 23.9335761 | 0.0007352 |
| 20 | 23.8485978 | 0.0332758 |
| 21 | 23.7619233 | 0.0664330 |
| 22 | 23.6728206 | 0.1004849 |
| 23 | 23.5804801 | 0.1357372 |
| 24 | 23.6144788 | 0.2446659 |
| 25 | 23.6478031 | 0.3516975 |
| 26 | 23.6808081 | 0.4579625 |
| 27 | 23.7138393 | 0.5645570 |
| 28 | 23.7472339 | 0.6725943 |
| 29 | 23.7813535 | 0.7832468 |
| 30 | 23.8165886 | 0.8978027 |
| 31 | 23.8533790 | 1.0177332 |
| 32 | 23.8922434 | 1.1447755 |
| 33 | 23.9338083 | 1.2810438 |
| 34 | 23.9788561 | 1.4292025 |
| 35 | 24.0875182 | 1.3860827 |
| 36 | 24.1923652 | 1.3446354 |
| 37 | 24.2943628 | 1.3044645 |
| 38 | 24.3943806 | 1.2652182 |
| 39 | 24.4932175 | 1.2265739 |
| 40 | 24.5916426 | 1.1882284 |
| 41 | 24.6904087 | 1.1498896 |
| 42 | 24.7902777 | 1.1112632 |
| 43 | 24.8920467 | 1.0720468 |
| 44 | 24.9965785 | 1.0319203 |

HIGH RESOLUTION 61

| INDEX | LONGITUDE | LATITUDE |
|---|---|---|
| 1 | 24.4606240 | 0.7854359 |
| 2 | 24.4392104 | 0.7312981 |
| 3 | 24.4183028 | 0.6784384 |
| 4 | 24.3978441 | 0.6266980 |
| 5 | 24.3777716 | 0.5759309 |
| 6 | 24.3580327 | 0.5260048 |
| 7 | 24.3385797 | 0.4767907 |
| 8 | 24.3193614 | 0.4281675 |
| 9 | 24.3003345 | 0.3800223 |
| 10 | 24.2814541 | 0.3322417 |
| 11 | 24.2626781 | 0.2847216 |
| 12 | 24.2439661 | 0.2373550 |
| 13 | 24.2320833 | 0.2419313 |
| 14 | 24.2202051 | 0.2465058 |
| 15 | 24.2083335 | 0.2510769 |
| 16 | 24.1964624 | 0.2556489 |
| 17 | 24.1845949 | 0.2602182 |
| 18 | 24.1727259 | 0.2647894 |
| 19 | 24.1608565 | 0.2693605 |
| 20 | 24.1489813 | 0.2739333 |
| 21 | 24.1371009 | 0.2785078 |
| 22 | 24.1252148 | 0.2830857 |
| 23 | 24.1133192 | 0.2876662 |
| 24 | 24.1312110 | 0.3353785 |
| 25 | 24.1491580 | 0.3832479 |
| 26 | 24.1672010 | 0.4313802 |
| 27 | 24.1853824 | 0.4798831 |
| 28 | 24.2037406 | 0.5288692 |
| 29 | 24.2223213 | 0.5784521 |
| 30 | 24.2411692 | 0.6287548 |
| 31 | 24.2603328 | 0.6799052 |
| 32 | 24.2798626 | 0.7320409 |
| 33 | 24.2998130 | 0.7853061 |
| 34 | 24.3202422 | 0.8398597 |
| 35 | 24.3330224 | 0.8348993 |
| 36 | 24.3457944 | 0.8299422 |
| 37 | 24.3585579 | 0.8249895 |
| 38 | 24.3713162 | 0.8200402 |
| 39 | 24.3840714 | 0.8150951 |
| 40 | 24.3968246 | 0.8101501 |
| 41 | 24.4095764 | 0.8052076 |
| 42 | 24.4223313 | 0.8002659 |
| 43 | 24.4350898 | 0.7953234 |
| 44 | 24.4478519 | 0.7903792 |

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* PHOTO FRAME NUMBER 3 OF 8 *
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FRAME 62

| | YEAR | MONTH | DAY | HOUR | MINUTE | SECOND |
|---|---|---|---|---|---|---|
| GMT | 67 | 2 | 16 | 17 | 19 | 42.399 |

| | | | | | |
|---|---|---|---|---|---|
| LONGITUDE OF NADIR POINT | = | 24.3097146 | DEG | LATITUDE OF NADIR POINT | = | 0.1846328 | DEG |
| LONG OF CAMERA AXIS INTERSECT | = | 24.4158833 | DEG | LATI OF CAMERA AXIS INTERSECT | = | 0.4752616 | DEG |
| SPACECRAFT RADIUS | = | 1785.8480530 | KM | SPACECRAFT ALTITUDE | = | 47.7580566 | KM |
| MEAN ALTITUDE RATE | = | -0.0073744 | KM/SEC | TIME FROM PERIAPSIS | = | -14.2761871 | SEC |
| HORIZONTAL VELOCITY | = | 1.9150991 | KM/SEC | TRUE ANOMALY | = | 359.1227798 | DEG |
| SCALE FACTOR (HIGH) | = | 0.0125265 | M/KM | TILT DISTANCE (HIGH) | = | 119.8230276 | MM |
| SCALE FACTOR (LOW) | = | 0.0016428 | M/KM | TILT DISTANCE (LOW) | = | 15.7144954 | MM |
| IMAGE MOTION COMPENSATION (V/H) | = | 0.0393275 | RAD/SEC | SWING ANGLE | = | 178.9916191 | DEG |
| EMISSION ANGLE | = | 11.4226006 | DEG | INCIDENCE ANGLE | = | 70.5511770 | DEG |
| PHASE ANGLE | = | 74.4742565 | DEG | NORTH DEVIATION ANGLE | = | 338.5516930 | DEG |
| TILT ANGLE | = | 11.1131852 | DEG | RESOLUTION CONSTANT | = | 1.0567151 | MTR |
| TILT AZIMUTH | = | 20.0670507 | DEG | SUN AZIMUTH AT PRINCIPAL GND PT | = | 91.7474518 | DEG |
| SUN ANGLE AT NADIR | = | 70.6486998 | DEG | SUN ARC AT NADIR | = | 2143.1560974 | KM |
| LONGITUDE DISTANCE TO TARGET | = | -0.2072854 | DEG | LATITUDE DISTANCE TO TARGET | = | -0.2653672 | DEG |
| LONGITUDE ARC LENGTH TO TARGET | = | -6.2880843 | KM | LATITUDE ARC LENGTH TO TARGET | = | -8.0500177 | KM |
| FORWARD OVERLAP RATIO | = | 0.0689699 | PCT | SIDE OVERLAP RATIO | = | 0. | PCT |
| TIME BETWEEN PHOTOS | = | 2.3000479 | SEC | ALPHA | = | -4.2748681 | DEG. |

| | X | Y | Z | MAGNITUDE (KM) |
|---|---|---|---|---|
| DIRECTION COSINES TO TARGET | -0.94465069 | -0.28552932 | 0.16157997 | 48.86751842 |
| CAMERA AXIS | -0.92199746 | -0.34391608 | 0.17788319 | 48.69654846 |
| C1 | -0.91886815 | -0.22983240 | 0.32371544 | 51.40800476 |
| C2 | -0.92859845 | -0.37107563 | -0.00279531 | 47.80586243 |
| C3 | -0.89430813 | -0.44650404 | 0.02910502 | 47.82067871 |
| C4 | -0.88457785 | -0.30526081 | 0.35261577 | 51.42517090 |

| | X | Y | Z | X DOT | Y DOT | Z DOT |
|---|---|---|---|---|---|---|
| STATE VECTOR (1950.0) | -422.2724190 | -1604.8861694 | -659.7572861 | 1.7504186 | -0.1380291 | -0.7646191 |

LONG 25.2407 DEG
LATI 0.9389 DEG

LONG 24.6714 DEG
LATI -0.2831 DEG

(1) • 43.89297 KM • (2)

LOW RESOLUTION

36.63422 KM 31.03641 KM

(4) • 43.99998 KM • (3)

LONG 24.1144 DEG
LATI 1.3755 DEG

LONG 23.7165 DEG
LATI 0.0838 DEG

LONG 24.5958 DEG
LATI 0.7332 DEG

LONG 24.3792 DEG
LATI 0.1853 DEG

(1) • 17.87309 KM • (2)

HIGH RESOLUTION

4.56508 KM 4.24516 KM

(4) • 17.87908 KM • (3)

LONG 24.4554 DEG
LATI 0.7875 DEG

LONG 24.2486 DEG
LATI 0.2356 DEG

LOW RESOLUTION 62

| INDEX | LONGITUDE | LATITUDE |
|---|---|---|
| 1 | 25.2406549 | 0.9389025 |
| 2 | 25.1750474 | 0.7994062 |
| 3 | 25.1147950 | 0.6709944 |
| 4 | 25.0587025 | 0.5511852 |
| 5 | 25.0058196 | 0.4379987 |
| 6 | 24.9553688 | 0.3298110 |
| 7 | 24.9066968 | 0.2252400 |
| 8 | 24.8592286 | 0.1230757 |
| 9 | 24.8124495 | 0.0222135 |
| 10 | 24.7658672 | -0.0784003 |
| 11 | 24.7190025 | -0.1797996 |
| 12 | 24.6713610 | -0.2830593 |
| 13 | 24.5797138 | -0.2476806 |
| 14 | 24.4911482 | -0.2135254 |
| 15 | 24.4048746 | -0.1802845 |
| 16 | 24.3201776 | -0.1476823 |
| 17 | 24.2363875 | -0.1154592 |
| 18 | 24.1528702 | -0.0833710 |
| 19 | 24.0689938 | -0.0511735 |
| 20 | 23.9841173 | -0.0186242 |
| 21 | 23.8975718 | 0.0145372 |
| 22 | 23.8086295 | 0.0485797 |
| 23 | 23.7164850 | 0.0838115 |
| 24 | 23.7504487 | 0.1926062 |
| 25 | 23.7837393 | 0.2995046 |
| 26 | 23.8167131 | 0.4056338 |
| 27 | 23.8497078 | 0.5120900 |
| 28 | 23.8830676 | 0.6199831 |
| 29 | 23.9171531 | 0.7304853 |
| 30 | 23.9523506 | 0.8448816 |
| 31 | 23.9891019 | 0.9646430 |
| 32 | 24.0279238 | 1.0914992 |
| 33 | 24.0694427 | 1.2275651 |
| 34 | 24.1144419 | 1.3754951 |
| 35 | 24.2229321 | 1.3326527 |
| 36 | 24.3276520 | 1.2914573 |
| 37 | 24.4295638 | 1.2515177 |
| 38 | 24.5295320 | 1.2124823 |
| 39 | 24.6283581 | 1.1740327 |
| 40 | 24.7268054 | 1.1358690 |
| 41 | 24.8256278 | 1.0976976 |
| 42 | 24.9255867 | 1.0592274 |
| 43 | 25.0274878 | 1.0201579 |
| 44 | 25.1321898 | 0.9801671 |

HIGH RESOLUTION 62

| INDEX | LONGITUDE | LATITUDE |
|---|---|---|
| 1 | 24.5958235 | 0.7332276 |
| 2 | 24.5744143 | 0.6791035 |
| 3 | 24.5535116 | 0.6262592 |
| 4 | 24.5330551 | 0.5745324 |
| 5 | 24.5129890 | 0.5237807 |
| 6 | 24.4932537 | 0.4738683 |
| 7 | 24.4738050 | 0.4246679 |
| 8 | 24.4545925 | 0.3760591 |
| 9 | 24.4355698 | 0.3279259 |
| 10 | 24.4166937 | 0.2801607 |
| 11 | 24.3979230 | 0.2326533 |
| 12 | 24.3792150 | 0.1853013 |
| 13 | 24.3673351 | 0.1898758 |
| 14 | 24.3554599 | 0.1944478 |
| 15 | 24.3435898 | 0.1990180 |
| 16 | 24.3317242 | 0.2035866 |
| 17 | 24.3198597 | 0.2081560 |
| 18 | 24.3079960 | 0.2127237 |
| 19 | 24.2961307 | 0.2172931 |
| 20 | 24.2842624 | 0.2218633 |
| 21 | 24.2723887 | 0.2264353 |
| 22 | 24.2605081 | 0.2310089 |
| 23 | 24.2486205 | 0.2355877 |
| 24 | 24.2665036 | 0.2832753 |
| 25 | 24.2844429 | 0.3311190 |
| 26 | 24.3024771 | 0.3792266 |
| 27 | 24.3206494 | 0.4277047 |
| 28 | 24.3389986 | 0.4766644 |
| 29 | 24.3575714 | 0.5262217 |
| 30 | 24.3764100 | 0.5764987 |
| 31 | 24.3955655 | 0.6276218 |
| 32 | 24.4150844 | 0.6797293 |
| 33 | 24.4350278 | 0.7329655 |
| 34 | 24.4554482 | 0.7874901 |
| 35 | 24.4682250 | 0.7825442 |
| 36 | 24.4809937 | 0.7776034 |
| 37 | 24.4937553 | 0.7726660 |
| 38 | 24.5065114 | 0.7677329 |
| 39 | 24.5192642 | 0.7628006 |
| 40 | 24.5320170 | 0.7578718 |
| 41 | 24.5447690 | 0.7529430 |
| 42 | 24.5575259 | 0.7480150 |
| 43 | 24.5702863 | 0.7430870 |
| 44 | 24.5830500 | 0.7381573 |

**********
* PHOTO FRAME NUMBER 4 OF 8 *
**********

## FRAME 63

| | YEAR | MONTH | DAY | HOUR | MINUTE | SECOND |
|---|---|---|---|---|---|---|
| GMT | 67 | 2 | 16 | 17 | 19 | 44.499 |

| | | | | | |
|---|---|---|---|---|---|
| LONGITUDE OF NADIR POINT | = | 24.4298594 | DEG | LATITUDE OF NADIR POINT | = | 0.1383941 | DEG |
| LONG OF CAMERA AXIS INTERSECT | = | 24.3393069 | DEG | LATI OF CAMERA AXIS INTERSECT | = | 0.4276629 | DEG |
| SPACECRAFT RADIUS | = | 1785.8336945 | KM | SPACECRAFT ALTITUDE | = | 47.7436981 | KM |
| MEAN ALTITUDE RATE | = | -0.0062899 | KM/SEC | TIME FROM PERIAPSIS | = | -12.1765516 | SEC |
| HORIZONTAL VELOCITY | = | 1.9151141 | KM/SEC | TRUE ANOMALY | = | 359.2517891 | DEG |
| SCALE FACTOR (HIGH) | = | 0.0125304 | M/KM | TILT DISTANCE (HIGH) | = | 119.8079395 | MM |
| SCALE FACTOR (LOW) | = | 0.0016433 | M/KM | TILT DISTANCE (LOW) | = | 15.7125167 | MM |
| IMAGE MOTION COMPENSATION (V/H) | = | 0.0393396 | RAD/SEC | SWING ANGLE | = | 179.6609459 | DEG |
| EMISSION ANGLE | = | 11.4211046 | DEG | INCIDENCE ANGLE | = | 78.4260778 | DEG |
| PHASE ANGLE | = | 74.4742575 | DEG | NORTH DEVIATION ANGLE | = | 338.5541077 | DEG |
| TILT ANGLE | = | 11.1118206 | DEG | RESOLUTION CONSTANT | = | 1.0563919 | MTR |
| TILT AZIMUTH | = | 20.7241466 | DEG | SUN AZIMUTH AT PRINCIPAL GND PT | = | 91.7328997 | DEG |
| SUN ANGLE AT NADIR | = | 70.5269928 | DEG | SUN ARC AT NADIR | = | 2139.4640808 | KM |
| LONGITUDE DISTANCE TO TARGET | = | -0.0871406 | DEG | LATITUDE DISTANCE TO TARGET | = | -0.3116059 | DEG |
| LONGITUDE ARC LENGTH TO TARGET | = | -2.6434431 | KM | LATITUDE ARC LENGTH TO TARGET | = | -9.4526862 | KM |
| FORWARD OVERLAP RATIO | = | 8.7666479 | PCT | SIDE OVERLAP RATIO | = | 0. | PCT |
| TIME BETWEEN PHOTOS | = | 2.0998478 | SEC | ALPHA | = | -4.3989021 | DEG. |

| | X | Y | Z | MAGNITUDE (KM) |
|---|---|---|---|---|
| DIRECTION COSINES TO TARGET | -0.91467808 | -0.35596082 | 0.19145730 | 48.76930571 |
| CAMERA AXIS | -0.92199919 | -0.34391136 | 0.17788327 | 48.68165588 |
| C1 | -0.91886929 | -0.22982769 | 0.32071554 | 51.39799500 |
| C2 | -0.92860034 | -0.37107088 | -0.00279521 | 47.79614258 |
| C3 | -0.89431041 | -0.44649947 | 0.02910510 | 47.80113220 |
| C4 | -0.88457937 | -0.30525629 | 0.35261586 | 51.40376282 |

| | X | Y | Z | X DOT | Y DOT | Z DOT |
|---|---|---|---|---|---|---|
| STATE VECTOR (1950.0) | -418.5957298 | -1605.1729736 | -661.3617325 | 1.7511780 | -0.1351272 | -0.7634255 |

LONG 25.3647 DEG
LATI 0.8918 DEG

LONG 24.7950 DEG
LATI -0.3308 DEG

(1) • 43.41587 KM • (2)

LOW RESOLUTION

36.62263 KM 31.02367 KM

(4) • 43.95183 KM • (3)

LONG 24.2382 DEG
LATI 1.3265 DEG

LONG 23.8404 DEG
LATI 0.0364 DEG

LONG 24.7192 DEG
LATI 0.6856 DEG

LONG 24.5027 DEG
LATI 0.1378 DEG

(1) • 17.86962 KM • (2)

HIGH RESOLUTION

4.56366 KM 4.24384 KM

(4) • 17.87163 KM • (3)

LONG 24.5786 DEG
LATI 0.7397 DEG

LONG 24.3721 DEG
LATI 0.1881 DEG

LOW RESOLUTION 63

| INDEX | LONGITUDE | LATITUDE |
|---|---|---|
| 1 | 25.3646762 | 0.8918263 |
| 2 | 25.2990093 | 0.7522395 |
| 3 | 25.2387071 | 0.6237482 |
| 4 | 25.1825690 | 0.5038682 |
| 5 | 25.1296470 | 0.3906177 |
| 6 | 25.0791612 | 0.2823720 |
| 7 | 25.0304558 | 0.1777480 |
| 8 | 24.9829564 | 0.0755351 |
| 9 | 24.9361491 | -0.0253784 |
| 10 | 24.8895385 | -0.1260358 |
| 11 | 24.8426468 | -0.2274786 |
| 12 | 24.7949820 | -0.3307801 |
| 13 | 24.7032511 | -0.2953220 |
| 14 | 24.6146319 | -0.2610993 |
| 15 | 24.5283318 | -0.2278039 |
| 16 | 24.4436305 | -0.1951556 |
| 17 | 24.3598588 | -0.1628949 |
| 18 | 24.2763813 | -0.1307785 |
| 19 | 24.1925676 | -0.0985613 |
| 20 | 24.1077783 | -0.0660010 |
| 21 | 24.0213447 | -0.0328404 |
| 22 | 23.9325428 | 0.0011978 |
| 23 | 23.8405728 | 0.0364143 |
| 24 | 23.8745060 | 0.1450937 |
| 25 | 23.9077675 | 0.2518752 |
| 26 | 23.9407113 | 0.3578874 |
| 27 | 23.9736767 | 0.4642232 |
| 28 | 24.0070083 | 0.5719916 |
| 29 | 24.0410614 | 0.6823632 |
| 30 | 24.0762277 | 0.7966220 |
| 31 | 24.1129441 | 0.9162340 |
| 32 | 24.1517310 | 1.0429289 |
| 33 | 24.1932111 | 1.1788163 |
| 34 | 24.2381659 | 1.3265474 |
| 35 | 24.3465064 | 1.2839543 |
| 36 | 24.4511178 | 1.2429868 |
| 37 | 24.5529583 | 1.2032539 |
| 38 | 24.6528897 | 1.1644089 |
| 39 | 24.7517097 | 1.1261351 |
| 40 | 24.8501830 | 1.0881345 |
| 41 | 24.9490626 | 1.0501142 |
| 42 | 25.0491107 | 1.0117866 |
| 43 | 25.1511376 | 0.9728477 |
| 44 | 25.2560019 | 0.9329782 |

HIGH RESOLUTION 63

| INDEX | LONGITUDE | LATITUDE |
|---|---|---|
| 1 | 24.7192292 | 0.6856075 |
| 2 | 24.6978223 | 0.6314962 |
| 3 | 24.6769218 | 0.5786604 |
| 4 | 24.6564701 | 0.5269457 |
| 5 | 24.6364055 | 0.4762033 |
| 6 | 24.6166744 | 0.4263011 |
| 7 | 24.5972271 | 0.3771110 |
| 8 | 24.5780175 | 0.3285116 |
| 9 | 24.5589983 | 0.2803886 |
| 10 | 24.5401247 | 0.2326328 |
| 11 | 24.5213580 | 0.1851348 |
| 12 | 24.5026548 | 0.1377922 |
| 13 | 24.4907737 | 0.1423659 |
| 14 | 24.4789014 | 0.1469370 |
| 15 | 24.4670336 | 0.1515055 |
| 16 | 24.4551706 | 0.1560741 |
| 17 | 24.4433100 | 0.1606409 |
| 18 | 24.4314492 | 0.1652069 |
| 19 | 24.4195890 | 0.1697737 |
| 20 | 24.4077234 | 0.1743414 |
| 21 | 24.3958559 | 0.1789117 |
| 22 | 24.3839808 | 0.1834836 |
| 23 | 24.3720996 | 0.1880582 |
| 24 | 24.3899753 | 0.2357260 |
| 25 | 24.4079061 | 0.2835519 |
| 26 | 24.4259346 | 0.3316381 |
| 27 | 24.4440997 | 0.3800958 |
| 28 | 24.4624429 | 0.4290349 |
| 29 | 24.4810092 | 0.4785717 |
| 30 | 24.4998405 | 0.5288265 |
| 31 | 24.5189869 | 0.5799283 |
| 32 | 24.5385020 | 0.6320136 |
| 33 | 24.5584345 | 0.6852259 |
| 34 | 24.5788493 | 0.7397283 |
| 35 | 24.5916231 | 0.7347960 |
| 36 | 24.6043899 | 0.7298697 |
| 37 | 24.6171498 | 0.7249452 |
| 38 | 24.6299067 | 0.7200249 |
| 39 | 24.6426604 | 0.7151071 |
| 40 | 24.6554127 | 0.7101903 |
| 41 | 24.6681654 | 0.7052751 |
| 42 | 24.6809232 | 0.7003599 |
| 43 | 24.6936841 | 0.6954430 |
| 44 | 24.7064521 | 0.6905261 |

PHOTO FRAME NUMBER 5 OF 9

## FRAME 64

| | YEAR | MONTH | DAY | HOUR | MINUTE | SECOND |
|---|---|---|---|---|---|---|
| GMT | 67 | 2 | 10 | 17 | 19 | 46.799 |

| | | | | | |
|---|---|---|---|---|---|
| LONGITUDE OF NADIR POINT | = | 24.5614429 | DEG | LATITUDE OF NADIR POINT | = | 0.0877917 | DEG |
| LONG OF CAMERA AXIS INTERSECT | = | 24.6744859 | DEG | LATI OF CAMERA AXIS INTERSECT | = | 0.3755494 | DEG |
| SPACECRAFT RADIUS | = | 1785.8206024 | KM | SPACECRAFT ALTITUDE | = | 47.7306061 | KM |
| MEAN ALTITUDE RATE | = | -0.0051021 | KM/SEC | TIME FROM PERIAPSIS | = | -9.8768591 | SEC |
| HORIZONTAL VELOCITY | = | 1.9191276 | KM/SEC | TRUE ANOMALY | = | 359.3930931 | DEG |
| SCALE FACTOR (HIGH) | = | 0.0125338 | M/KM | TILT DISTANCE (HIGH) | = | 119.8102427 | MM |
| SCALE FACTOR (LOW) | = | 0.0016438 | M/KM | TILT DISTANCE (LOW) | = | 15.7128187 | MM |
| IMAGE MOTION COMPENSATION (V/H) | = | 0.0393504 | RAD/SEC | SWING ANGLE | = | 180.3940716 | DEG |
| EMISSION ANGLE | = | 11.4212340 | DEG | INCIDENCE ANGLE | = | 70.2890721 | DEG |
| PHASE ANGLE | = | 74.4742575 | DEG | NORTH DEVIATION ANGLE | = | 338.5569916 | DEG |
| TILT ANGLE | = | 11.1120290 | DEG | RESOLUTION CONSTANT | = | 1.0561032 | MTR |
| TILT AZIMUTH | = | 21.4438066 | DEG | SUN AZIMUTH AT PRINCIPAL GND PT | = | 91.7167130 | DEG |
| SUN ANGLE AT NADIR | = | 70.3937044 | DEG | SUN ARC AT NADIR | = | 2135.4207458 | KM |
| LONGITUDE DISTANCE TO TARGET | = | 0.0444429 | DEG | LATITUDE DISTANCE TO TARGET | = | -0.3622483 | DEG |
| LONGITUDE ARC LENGTH TO TARGET | = | 1.3481926 | KM | LATITUDE ARC LENGTH TO TARGET | = | -10.9889444 | KM |
| FORWARD OVERLAP RATIO | = | 0.0308035 | PCT | SIDE OVERLAP RATIO | = | 0. | PCT |
| TIME BETWEEN PHOTOS | = | 2.3000479 | SEC | ALPHA | = | -4.5347138 | DEG. |

| | X | Y | Z | MAGNITUDE (KM) |
|---|---|---|---|---|
| DIRECTION COSINES TO TARGET | -0.87490920 | -0.43008414 | 0.22262418 | 49.03210020 |
| CAMERA AXIS | -0.92200113 | -0.34390611 | 0.17798335 | 48.66835022 |
| C1 | -0.91887058 | -0.22982246 | 0.32071561 | 51.39016724 |
| C2 | -0.92860245 | -0.37106559 | -0.00279514 | 47.78843689 |
| C3 | -0.89431296 | -0.44649438 | 0.02910517 | 47.78265381 |
| C4 | -0.88458108 | -0.30525126 | 0.35261593 | 51.38345337 |

| | X | Y | Z | X DOT | Y DOT | Z DOT |
|---|---|---|---|---|---|---|
| STATE VECTOR (1950.0) | -414.5670929 | -1605.4801178 | -663.1160965 | 1.7520020 | -0.1319484 | -0.7621147 |

LONG 25.5006 DEG
LATI 0.8403 DEG

LONG 24.9304 DEG
LATI -0.3831 DEG

* 40.94351 KM *
(1) (2)

LOW RESOLUTION

36.61263 KM 31.01216 KM

(4) (3)
* 40.99171 KM *

LONG 24.3736 DEG
LATI 1.2730 DEG

LONG 23.9764 DEG
LATI -0.0155 DEG

LONG 24.8544 DEG
LATI 0.6335 DEG

LONG 24.6378 DEG
LATI 0.0858 DEG

* 17.86691 KM *
(1) (2)

HIGH RESOLUTION

4.56242 KM 4.24267 KM

(4) (3)
* 17.86456 KM *

LONG 24.7140 DEG
LATI 0.6875 DEG

LONG 24.5073 DEG
LATI 0.1360 DEG

LOW RESOLUTION 64

| INDEX | LONGITUDE | LATITUDE |
|---|---|---|
| 1 | 25.5005634 | 0.8403156 |
| 2 | 25.4348302 | 0.7006186 |
| 3 | 25.3744678 | 0.5720335 |
| 4 | 25.3182783 | 0.4520680 |
| 5 | 25.2653093 | 0.3387415 |
| 6 | 25.2147803 | 0.2304241 |
| 7 | 25.1660361 | 0.1257344 |
| 8 | 25.1185009 | 0.0234600 |
| 9 | 25.0716574 | -0.0775115 |
| 10 | 25.0250156 | -0.1782244 |
| 11 | 24.9780939 | -0.2797210 |
| 12 | 24.9303980 | -0.3830754 |
| 13 | 24.8385699 | -0.3475277 |
| 14 | 24.7498872 | -0.3132299 |
| 15 | 24.6635487 | -0.2798713 |
| 16 | 24.5788350 | -0.2471700 |
| 17 | 24.4950788 | -0.2148684 |
| 18 | 24.4116406 | -0.1827178 |
| 19 | 24.3278892 | -0.1504776 |
| 20 | 24.2431903 | -0.1179027 |
| 21 | 24.1568744 | -0.0847370 |
| 22 | 24.0682204 | -0.0507056 |
| 23 | 23.9764314 | -0.0155062 |
| 24 | 24.0103350 | 0.0930553 |
| 25 | 24.0435650 | 0.1997173 |
| 26 | 24.0764797 | 0.3056074 |
| 27 | 24.1094160 | 0.4118186 |
| 28 | 24.1427155 | 0.5194581 |
| 29 | 24.1767364 | 0.6296931 |
| 30 | 24.2118685 | 0.7438076 |
| 31 | 24.2485516 | 0.8632650 |
| 32 | 24.2873001 | 0.9897909 |
| 33 | 24.3287401 | 1.1254922 |
| 34 | 24.3736491 | 1.2730149 |
| 35 | 24.4818337 | 1.2306925 |
| 36 | 24.5863328 | 1.1899692 |
| 37 | 24.6881022 | 1.1504608 |
| 38 | 24.7879992 | 1.1118207 |
| 39 | 24.8868206 | 1.0737365 |
| 40 | 24.9853294 | 1.0359117 |
| 41 | 25.0842781 | 0.9980571 |
| 42 | 25.1844335 | 0.9598806 |
| 43 | 25.2866018 | 0.9210843 |
| 44 | 25.3916554 | 0.8813454 |

HIGH RESOLUTION 64

| INDEX | LONGITUDE | LATITUDE |
|---|---|---|
| 1 | 24.8543968 | 0.6334872 |
| 2 | 24.8329918 | 0.5793844 |
| 3 | 24.8120959 | 0.5265572 |
| 4 | 24.7916453 | 0.4748493 |
| 5 | 24.7715821 | 0.4241155 |
| 6 | 24.7518535 | 0.3742209 |
| 7 | 24.7324088 | 0.3250384 |
| 8 | 24.7132010 | 0.2764468 |
| 9 | 24.6941841 | 0.2283307 |
| 10 | 24.6753151 | 0.1805834 |
| 11 | 24.6565502 | 0.1330939 |
| 12 | 24.6378477 | 0.0857581 |
| 13 | 24.6259685 | 0.0903318 |
| 14 | 24.6140966 | 0.0949021 |
| 15 | 24.6022320 | 0.0994697 |
| 16 | 24.5903714 | 0.1040357 |
| 17 | 24.5785110 | 0.1086009 |
| 18 | 24.5666559 | 0.1131660 |
| 19 | 24.5547974 | 0.1177311 |
| 20 | 24.5429375 | 0.1222971 |
| 21 | 24.5310733 | 0.1268639 |
| 22 | 24.5192034 | 0.1314342 |
| 23 | 24.5073268 | 0.1360061 |
| 24 | 24.5251961 | 0.1836552 |
| 25 | 24.5431218 | 0.2314614 |
| 26 | 24.5611434 | 0.2795298 |
| 27 | 24.5793030 | 0.3279686 |
| 28 | 24.5976393 | 0.3768873 |
| 29 | 24.6161976 | 0.4264036 |
| 30 | 24.6350241 | 0.4766388 |
| 31 | 24.6541648 | 0.5277200 |
| 32 | 24.6736710 | 0.5797823 |
| 33 | 24.6935971 | 0.6329741 |
| 34 | 24.7140043 | 0.6874534 |
| 35 | 24.7267768 | 0.6825365 |
| 36 | 24.7395427 | 0.6776248 |
| 37 | 24.7523017 | 0.6727156 |
| 38 | 24.7650590 | 0.6678089 |
| 39 | 24.7778127 | 0.6629049 |
| 40 | 24.7905664 | 0.6580025 |
| 41 | 24.8033233 | 0.6531010 |
| 42 | 24.8160825 | 0.6481995 |
| 43 | 24.8288462 | 0.6432962 |
| 44 | 24.8416188 | 0.6383930 |

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* PHOTO FRAME NUMBER 6 OF 9 *
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## FRAME 65

| | YEAR | MONTH | DAY | HOUR | MINUTE | SECOND |
|---|---|---|---|---|---|---|
| GMT | 67 | 2 | 16 | 17 | 19 | 48.999 |

| | | | | | |
|---|---|---|---|---|---|
| LONGITUDE OF NADIR POINT | = | 24.6873093 | DEG | LATITUDE OF NADIR POINT | = | 0.0393394 | DEG |
| LONG OF CAMERA AXIS INTERSECT | = | 24.8037961 | DEG | LATI OF CAMERA AXIS INTERSECT | = | 0.3257181 | DEG |
| SPACECRAFT RADIUS | = | 1785.8106232 | KM | SPACECRAFT ALTITUDE | = | 47.7206268 | KM |
| MEAN ALTITUDE RATE | = | -0.0039658 | KM/SEC | TIME FROM PERIAPSIS | = | -7.6771837 | SEC |
| HORIZONTAL VELOCITY | = | 1.9151378 | KM/SEC | TRUE ANOMALY | = | 359.5282516 | DEG |
| SCALE FACTOR (HIGH) | = | 0.0125363 | M/KM | TILT DISTANCE (HIGH) | = | 119.8307886 | MM |
| SCALE FACTOR (LOW) | = | 0.0016441 | M/KM | TILT DISTANCE (LOW) | = | 15.7155132 | MM |
| IMAGE MOTION COMPENSATION (V/H) | = | 0.0393582 | RAD/SEC | SWING ANGLE | = | 181.0952301 | DEG |
| EMISSION ANGLE | = | 11.4230814 | DEG | INCIDENCE ANGLE | = | 79.1580238 | DEG |
| PHASE ANGLE | = | 74.4742575 | DEG | NORTH DEVIATION ANGLE | = | 338.5599765 | DEG |
| TILT ANGLE | = | 11.1138871 | DEG | RESOLUTION CONSTANT | = | 1.0558893 | MTR |
| TILT AZIMUTH | = | 22.1319509 | DEG | SUN AZIMUTH AT PRINCIPAL GND PT | = | 91.7609859 | DEG |
| SUN ANGLE AT NADIR | = | 70.2662220 | DEG | SUN ARC AT NADIR | = | 2131.5534973 | KM |
| LONGITUDE DISTANCE TO TARGET | = | 0.1703093 | DEG | LATITUDE DISTANCE TO TARGET | = | -0.4106906 | DEG |
| LONGITUDE ARC LENGTH TO TARGET | = | 5.1663997 | KM | LATITUDE ARC LENGTH TO TARGET | = | -12.4584595 | KM |
| FORWARD OVERLAP RATIO | = | 4.3717371 | PCT | SIDE OVERLAP RATIO | = | 0. | PCT |
| TIME BETWEEN PHOTOS | = | 2.1996260 | SEC | ALPHA | = | -4.6645764 | DEG. |

| | X | Y | Z | MAGNITUDE (KM) |
|---|---|---|---|---|
| DIRECTION COSINES TO TARGET | -0.83113954 | -0.49658846 | 0.25031345 | 49.64021254 |
| CAMERA AXIS | -0.92200298 | -0.34390113 | 0.17788342 | 48.65849304 |
| C1 | -0.91887179 | -0.22981750 | 0.32071569 | 51.38571167 |
| C2 | -0.92860445 | -0.37106057 | -0.00279506 | 47.78388977 |
| C3 | -0.89431537 | -0.44648954 | 0.02910525 | 47.76780701 |
| C4 | -0.88458269 | -0.30524647 | 0.35261600 | 51.36709595 |

| | X | Y | Z | X DOT | Y DOT | Z DOT |
|---|---|---|---|---|---|---|
| STATE VECTOR (1950.0) | -410.7118073 | -1605.7670593 | -664.7913742 | 1.7527828 | -0.1289071 | -0.7638578 |

LONG 25.6306 DEG
LATI 0.7911 DEG

LONG 25.0600 DEG
LATI -0.4331 DEG

(1) • 40.97244 KM • (2)

LOW RESOLUTION

36.60557 KM 31.00607 KM

(4) • 40.85629 KM • (3)

LONG 24.5032 DEG
LATI 1.2219 DEG

LONG 24.1063 DEG
LATI -0.0652 DEG

LONG 24.9837 DEG
LATI 0.5837 DEG

LONG 24.7672 DEG
LATI 0.0360 DEG

(1) • 17.86537 KM • (2)

HIGH RESOLUTION

4.56153 KM 4.24184 KM

(4) • 17.85886 KM • (3)

LONG 24.8433 DEG
LATI 0.6375 DEG

LONG 24.6367 DEG
LATI 0.0862 DEG

LOW RESOLUTION 65

| INDEX | LONGITUDE | LATITUDE |
|---|---|---|
| 1 | 25.6306074 | 0.7910896 |
| 2 | 25.5648038 | 0.6512807 |
| 3 | 25.5043821 | 0.5225957 |
| 4 | 25.4481406 | 0.4025415 |
| 5 | 25.3951216 | 0.2891347 |
| 6 | 25.3445492 | 0.1807430 |
| 7 | 25.2957647 | 0.0759858 |
| 8 | 25.2481921 | -0.0263577 |
| 9 | 25.2013135 | -0.1273873 |
| 10 | 25.1546376 | -0.2281608 |
| 11 | 25.1076818 | -0.3297154 |
| 12 | 25.0599554 | -0.4331270 |
| 13 | 24.9680285 | -0.3974914 |
| 14 | 24.8792763 | -0.3631193 |
| 15 | 24.7928979 | -0.3296975 |
| 16 | 24.7081690 | -0.2969450 |
| 17 | 24.6244199 | -0.2646007 |
| 18 | 24.5410128 | -0.2324168 |
| 19 | 24.4573176 | -0.2001519 |
| 20 | 24.3726974 | -0.1675608 |
| 21 | 24.2864869 | -0.1343882 |
| 22 | 24.1979685 | -0.1003602 |
| 23 | 24.1063483 | -0.0651745 |
| 24 | 24.1402242 | 0.0432803 |
| 25 | 24.1734276 | 0.1498339 |
| 26 | 24.2063146 | 0.2556138 |
| 27 | 24.2392232 | 0.3617114 |
| 28 | 24.2724965 | 0.4692331 |
| 29 | 24.3064890 | 0.5793452 |
| 30 | 24.3415897 | 0.6933291 |
| 31 | 24.3782411 | 0.8126456 |
| 32 | 24.4169569 | 0.9390187 |
| 33 | 24.4583588 | 1.0745510 |
| 34 | 24.5032279 | 1.2218833 |
| 35 | 24.6112690 | 1.1798161 |
| 36 | 24.7156718 | 1.1393242 |
| 37 | 24.8173790 | 1.1000258 |
| 38 | 24.9172497 | 1.0615813 |
| 39 | 25.0160780 | 1.0236763 |
| 40 | 25.1146266 | 0.9860172 |
| 41 | 25.2136483 | 0.9483163 |
| 42 | 25.3139126 | 0.9102832 |
| 43 | 25.4162266 | 0.8716201 |
| 44 | 25.5214655 | 0.8320067 |

HIGH RESOLUTION 65

| INDEX | LONGITUDE | LATITUDE |
|---|---|---|
| 1 | 24.9837096 | 0.5836644 |
| 2 | 24.9623065 | 0.5295659 |
| 3 | 24.9414082 | 0.4767438 |
| 4 | 24.9209578 | 0.4250410 |
| 5 | 24.9008961 | 0.3743114 |
| 6 | 24.8811696 | 0.3244220 |
| 7 | 24.8617256 | 0.2752430 |
| 8 | 24.8425200 | 0.2266564 |
| 9 | 24.8235037 | 0.1785454 |
| 10 | 24.8046353 | 0.1308015 |
| 11 | 24.7858725 | 0.0833163 |
| 12 | 24.7671728 | 0.0359857 |
| 13 | 24.7552929 | 0.0405594 |
| 14 | 24.7434216 | 0.0451288 |
| 15 | 24.7315574 | 0.0496956 |
| 16 | 24.7196970 | 0.0542599 |
| 17 | 24.7078414 | 0.0588250 |
| 18 | 24.6959851 | 0.0633884 |
| 19 | 24.6841300 | 0.0679518 |
| 20 | 24.6722729 | 0.0725161 |
| 21 | 24.6604130 | 0.0770812 |
| 22 | 24.6485486 | 0.0816498 |
| 23 | 24.6366763 | 0.0862192 |
| 24 | 24.6545379 | 0.1338538 |
| 25 | 24.6724594 | 0.1816438 |
| 26 | 24.6904747 | 0.2296975 |
| 27 | 24.7086289 | 0.2781202 |
| 28 | 24.7269611 | 0.3270243 |
| 29 | 24.7455149 | 0.3765244 |
| 30 | 24.7643347 | 0.4267425 |
| 31 | 24.7834706 | 0.4778067 |
| 32 | 24.8029711 | 0.5298528 |
| 33 | 24.8228936 | 0.5830266 |
| 34 | 24.8432958 | 0.6374872 |
| 35 | 24.8560674 | 0.6325848 |
| 36 | 24.8688323 | 0.6276867 |
| 37 | 24.8815930 | 0.6227920 |
| 38 | 24.8943491 | 0.6178982 |
| 39 | 24.9071059 | 0.6130078 |
| 40 | 24.9198611 | 0.6081173 |
| 41 | 24.9326196 | 0.6032286 |
| 42 | 24.9453816 | 0.5983399 |
| 43 | 24.9581494 | 0.5934495 |
| 44 | 24.9709246 | 0.5885574 |

**********  **********
* PHOTO FRAME NUMBER 7 OF 8 *
**********  **********

## FRAME 66

| | YEAR | MONTH | DAY | HOUR | MINUTE | SECOND |
|---|---|---|---|---|---|---|
| GMT | 67 | 2 | 16 | 17 | 19 | 51.199 |

| | | | | | |
|---|---|---|---|---|---|
| LONGITUDE OF NADIR POINT | = | 24.8131154 | DEG | LATITUDE OF NADIR POINT | = -0.0091128 DEG |
| LONG OF CAMERA AXIS INTERSECT | = | 24.9330482 | DEG | LATI OF CAMERA AXIS INTERSECT | = 0.2759260 DEG |
| SPACECRAFT RADIUS | = | 1785.8031464 | KM | SPACECRAFT ALTITUDE | = 47.7131500 KM |
| MEAN ALTITUDE RATE | = | -0.0028301 | KM/SEC | TIME FROM PERIAPSIS | = -5.4785299 SEC |
| HORIZONTAL VELOCITY | = | 1.9151454 | KM/SEC | TRUE ANOMALY | = 359.6633492 DEG |
| SCALE FACTOR (HIGH) | = | 0.0125382 | M/KM | TILT DISTANCE (HIGH) | = 119.8691559 MM |
| SCALE FACTOR (LOW) | = | 0.0016443 | M/KM | TILT DISTANCE (LOW) | = 15.7205451 MM |
| IMAGE MOTION COMPENSATION (V/H) | = | 0.0393635 | RAD/SEC | SWING ANGLE | = 181.7957363 DEG |
| EMISSION ANGLE | = | 11.4266006 | DEG | INCIDENCE ANGLE | = 70.0270481 DEG |
| PHASE ANGLE | = | 74.4742575 | DEG | NORTH DEVIATION ANGLE | = 338.5631905 DEG |
| TILT ANGLE | = | 11.1173569 | DEG | RESOLUTION CONSTANT | = 1.0557366 PTR |
| TILT AZIMUTH | = | 22.8193331 | DEG | SUN AZIMUTH AT PRINCIPAL GND PT | = 91.6850290 DEG |
| SUN ANGLE AT NADIR | = | 70.1388111 | DEG | SUN ARC AT NADIR | = 2127.6884155 KM |
| LONGITUDE DISTANCE TO TARGET | = | 0.2961154 | DEG | LATITUDE DISTANCE TO TARGET | = -0.4591128 DEG |
| LONGITUDE ARC LENGTH TO TARGET | = | 8.9827770 | KM | LATITUDE ARC LENGTH TO TARGET | = -13.9273671 KM |
| FORWARD OVERLAP RATIO | = | 4.4030634 | PCT | SIDE OVERLAP RATIO | = 0. PCT |
| TIME BETWEEN PHOTOS | = | 2.2002697 | SEC | ALPHA | = -4.7543411 DEG. |

| | X | Y | Z | MAGNITUDE (KM) |
|---|---|---|---|---|
| DIRECTION COSINES TO TARGET | -0.78302302 | -0.55766149 | 0.27547887 | 50.58397055 |
| CAMERA AXIS | -0.92200484 | -0.34389611 | 0.17788352 | 48.65145874 |
| C1 | -0.91887301 | -0.22981250 | 0.32071578 | 51.38427734 |
| C2 | -0.92860649 | -0.37105552 | -0.00279497 | 47.78210449 |
| C3 | -0.89431780 | -0.44648467 | 0.02910534 | 47.75575256 |
| C4 | -0.88458433 | -0.30524165 | 0.35261609 | 51.35372925 |

| | X | Y | Z | X DOT | Y DOT | Z DOT |
|---|---|---|---|---|---|---|
| STATE VECTOR (1950.0) | -406.8566055 | -1606.0471802 | -666.4631119 | 1.7535559 | -0.1258666 | -0.7595982 |

LONG 25.7606 DEG
LATI 0.7419 DEG

LONG 25.1895 DEG
LATI -0.4832 DEG

(1) • 41.00382 KM • (2)

LOW RESOLUTION

36.60107 KM 31.00203 KM

(4) • 40.81337 KM • (3)

LONG 24.6327 DEG
LATI 1.1708 DEG

LONG 24.2362 DEG
LATI -0.1148 DEG

LONG 25.1130 DEG
LATI 0.5339 DEG

LONG 24.8964 DEG
LATI -0.0138 DEG

(1) • 17.86488 KM • (2)

HIGH RESOLUTION

4.56094 KM 4.24127 KM

(4) • 17.85421 KM • (3)

LONG 24.9725 DEG
LATI 0.5876 DEG

LONG 24.7660 DEG
LATI 0.0365 DEG

LOW RESOLUTION 66

| INDEX | LONGITUDE | LATITUDE |
|---|---|---|
| 1 | 25.7606437 | 0.7419310 |
| 2 | 25.6947675 | 0.6020009 |
| 3 | 25.6342840 | 0.4732083 |
| 4 | 25.5779841 | 0.3530602 |
| 5 | 25.5249162 | 0.2395646 |
| 6 | 25.4742954 | 0.1310935 |
| 7 | 25.4254670 | 0.0262604 |
| 8 | 25.3778553 | -0.0761540 |
| 9 | 25.3309381 | -0.1772519 |
| 10 | 25.2842259 | -0.2780903 |
| 11 | 25.2372351 | -0.3797098 |
| 12 | 25.1894724 | -0.4831847 |
| 13 | 25.0974417 | -0.4474585 |
| 14 | 25.0086155 | -0.4130104 |
| 15 | 24.9221904 | -0.3795237 |
| 16 | 24.8374405 | -0.3467166 |
| 17 | 24.7536931 | -0.3143279 |
| 18 | 24.6703124 | -0.2821099 |
| 19 | 24.5866659 | -0.2498184 |
| 20 | 24.5021207 | -0.2172094 |
| 21 | 24.4160116 | -0.1840283 |
| 22 | 24.3276207 | -0.1500003 |
| 23 | 24.2361619 | -0.1148257 |
| 24 | 24.2700124 | -0.0064742 |
| 25 | 24.3031907 | 0.0999786 |
| 26 | 24.3360519 | 0.2056544 |
| 27 | 24.3689339 | 0.3116462 |
| 28 | 24.4021814 | 0.4190569 |
| 29 | 24.4361479 | 0.5290528 |
| 30 | 24.4712212 | 0.6429120 |
| 31 | 24.5078428 | 0.7620963 |
| 32 | 24.5465252 | 0.8883241 |
| 33 | 24.5878932 | 1.0236959 |
| 34 | 24.6327240 | 1.1708472 |
| 35 | 24.7406311 | 1.1290320 |
| 36 | 24.8449404 | 1.0887688 |
| 37 | 24.9465933 | 1.0496788 |
| 38 | 25.0464458 | 1.0114246 |
| 39 | 25.1452868 | 0.9736964 |
| 40 | 25.2438822 | 0.9362012 |
| 41 | 25.3429835 | 0.8986514 |
| 42 | 25.4433630 | 0.8607601 |
| 43 | 25.5458298 | 0.8222284 |
| 44 | 25.6512630 | 0.7827362 |

HIGH RESOLUTION 66

| INDEX | LONGITUDE | LATITUDE |
|---|---|---|
| 1 | 25.1129742 | 0.5338962 |
| 2 | 25.0915692 | 0.4797986 |
| 3 | 25.0706728 | 0.4269790 |
| 4 | 25.0502212 | 0.3752779 |
| 5 | 25.0301595 | 0.3245501 |
| 6 | 25.0104318 | 0.2746607 |
| 7 | 24.9909899 | 0.2254842 |
| 8 | 24.9717832 | 0.1769002 |
| 9 | 24.9527676 | 0.1287909 |
| 10 | 24.9339001 | 0.0810479 |
| 11 | 24.9151366 | 0.0335644 |
| 12 | 24.8964379 | -0.0137654 |
| 13 | 24.8845558 | -0.0091929 |
| 14 | 24.8726850 | -0.0046237 |
| 15 | 24.8608203 | -0.0000571 |
| 16 | 24.8489604 | 0.0045074 |
| 17 | 24.8371053 | 0.0090706 |
| 18 | 24.8252511 | 0.0136330 |
| 19 | 24.8133976 | 0.0181965 |
| 20 | 24.8015437 | 0.0227599 |
| 21 | 24.7896855 | 0.0273233 |
| 22 | 24.7778232 | 0.0318901 |
| 23 | 24.7659566 | 0.0364578 |
| 24 | 24.7838142 | 0.0840796 |
| 25 | 24.8017302 | 0.1318585 |
| 26 | 24.8197427 | 0.1798986 |
| 27 | 24.8378913 | 0.2283085 |
| 28 | 24.8562191 | 0.2771998 |
| 29 | 24.8747685 | 0.3266871 |
| 30 | 24.8935852 | 0.3768915 |
| 31 | 24.9127152 | 0.4279412 |
| 32 | 24.9322131 | 0.4799736 |
| 33 | 24.9521308 | 0.5331338 |
| 34 | 24.9725273 | 0.5875781 |
| 35 | 24.9852993 | 0.5826903 |
| 36 | 24.9980657 | 0.5778050 |
| 37 | 25.0108275 | 0.5729239 |
| 38 | 25.0235853 | 0.5680438 |
| 39 | 25.0363438 | 0.5631662 |
| 40 | 25.0491030 | 0.5582894 |
| 41 | 25.0618644 | 0.5534118 |
| 42 | 25.0746303 | 0.5485359 |
| 43 | 25.0874035 | 0.5436574 |
| 44 | 25.1001837 | 0.5387781 |

**********
* PHOTO FRAME NUMBER 8 OF 8 *
**********

FRAME 67

| | YEAR | MONTH | DAY | HOUR | MINUTE | SECOND |
|---|---|---|---|---|---|---|
| GMT | 67 | 2 | 16 | 17 | 19 | 53.499 |

| | | | | | |
|---|---|---|---|---|---|
| LONGITUDE OF NADIR POINT | = | 24.9447601 | DEG | LATITUDE OF NADIR POINT | = -0.0597812 DEG |
| LONG OF CAMERA AXIS INTERSECT | = | 25.0683069 | DEG | LATI OF CAMERA AXIS INTERSECT | = 0.2238424 DEG |
| SPACECRAFT RADIUS | = | 1785.7980042 | KM | SPACECRAFT ALTITUDE | = 47.7080076 KM |
| MEAN ALTITUDE RATE | = | -0.0016416 | KM/SEC | TIME FROM PERIAPSIS | = -3.1778315 SEC |
| HORIZONTAL VELOCITY | = | 1.9151503 | KM/SEC | TRUE ANOMALY | = 359.8047218 DEG |
| SCALE FACTOR (HIGH) | = | 0.0125393 | M/KM | TILT DISTANCE (HIGH) | = 119.9285326 MM |
| SCALE FACTOR (LOW) | = | 0.0016445 | M/KM | TILT DISTANCE (LOW) | = 15.7283322 MM |
| IMAGE MOTION COMPENSATION (V/H) | = | 0.0393665 | RAD/SEC | SWING ANGLE | = 182.5281391 DEG |
| EMISSION ANGLE | = | 11.4320918 | DEG | INCIDENCE ANGLE | = 69.8900033 DEG |
| PHASE ANGLE | = | 74.4742584 | DEG | NORTH DEVIATION ANGLE | = 336.5667992 DEG |
| TILT ANGLE | = | 11.1227264 | DEG | RESOLUTION CONSTANT | = 1.0556426 PER |
| TILT AZIMUTH | = | 23.5379317 | DEG | SUN AZIMUTH AT PRINCIPAL GND PT | = 91.6680746 DEG |
| SUN ANGLE AT NADIR | = | 70.0055017 | DEG | SUN ARC AT NADIR | = 2123.6444397 KM |
| LONGITUDE DISTANCE TO TARGET | = | 0.4277601 | DEG | LATITUDE DISTANCE TO TARGET | = -0.5097814 DEG |
| LONGITUDE ARC LENGTH TO TARGET | = | 12.9762715 | KM | LATITUDE ARC LENGTH TO TARGET | = -15.4644139 KM |
| FORWARD OVERLAP RATIO | = | -0.0441273 | PCT | SIDE OVERLAP RATIO | = 0. PCT |
| TIME BETWEEN PHOTOS | = | 2.3000479 | SEC | ALPHA | = -4.9300917 DEG |

| | X | Y | Z | MAGNITUDE (KM) |
|---|---|---|---|---|
| DIRECTION COSINES TO TARGET | -0.72964565 | -0.61506201 | 0.29885775 | 51.91105890 |
| CAMERA AXIS | -0.92200678 | -0.34389087 | 0.17788360 | 48.64712524 |
| C1 | -0.91887429 | -0.22980728 | 0.32071586 | 51.38597107 |
| C2 | -0.92860860 | -0.37105024 | -0.00279489 | 47.78323364 |
| C3 | -0.89432033 | -0.44647959 | 0.02913542 | 47.74610901 |
| C4 | -0.88458603 | -0.30523663 | 0.35261616 | 51.34294128 |

| | X | Y | Z | X DOT | Y DOT | Z DOT |
|---|---|---|---|---|---|---|
| STATE VECTOR (1950.0) | -402.8207321 | -1606.3331451 | -668.2094345 | 1.7543571 | -0.1226845 | -0.7582768 |

LONG 25.8968 DEG
LATI 0.6905 DEG

LONG 25.3250 DEG
LATI -0.5356 DEG

* (1) 41.03929 KM * (2)

LOW RESOLUTION

36.59938 KM 30.99999 KM

(4) * 40.77111 KM (3) *

LONG 24.7682 DEG
LATI 1.1175 DEG

LONG 24.3720 DEG
LATI -0.1668 DEG

LONG 25.2483 DEG
LATI 0.4819 DEG

LONG 25.0317 DEG
LATI -0.0658 DEG

* (1) 17.86547 KM * (2)

HIGH RESOLUTION

4.56063 KM 4.24099 KM

(4) * 17.85045 KM (3) *

LONG 25.1078 DEG
LATI 0.5354 DEG

LONG 24.9012 DEG
LATI -0.0156 DEG

LOW RESOLUTION 67

| INDEX | LONGITUDE | LATITUDE |
|---|---|---|
| 1 | 25.8967791 | 0.6905424 |
| 2 | 25.8308251 | 0.5504757 |
| 3 | 25.7702699 | 0.4215635 |
| 4 | 25.7139075 | 0.3013052 |
| 5 | 25.6607826 | 0.1877124 |
| 6 | 25.6101105 | 0.0791491 |
| 7 | 25.5612335 | -0.0257720 |
| 8 | 25.5135760 | -0.1282641 |
| 9 | 25.4666154 | -0.2294406 |
| 10 | 25.4198618 | -0.3303532 |
| 11 | 25.3728311 | -0.4320462 |
| 12 | 25.3250310 | -0.5355944 |
| 13 | 25.2328825 | -0.4997718 |
| 14 | 25.1439734 | -0.4652409 |
| 15 | 25.0574923 | -0.4316842 |
| 16 | 24.9727139 | -0.3988190 |
| 17 | 24.8889637 | -0.3663824 |
| 18 | 24.8056042 | -0.3341243 |
| 19 | 24.7220056 | -0.3018030 |
| 20 | 24.6375303 | -0.2691735 |
| 21 | 24.5515182 | -0.2359813 |
| 22 | 24.4632583 | -0.2019525 |
| 23 | 24.3719609 | -0.1667881 |
| 24 | 24.4057848 | -0.0585364 |
| 25 | 24.4389396 | 0.0478181 |
| 26 | 24.4717774 | 0.1533924 |
| 27 | 24.5046341 | 0.2592800 |
| 28 | 24.5378566 | 0.3665814 |
| 29 | 24.5717947 | 0.4764629 |
| 30 | 24.6068420 | 0.5902009 |
| 31 | 24.6434340 | 0.7092528 |
| 32 | 24.6820867 | 0.8353372 |
| 33 | 24.7234204 | 0.9705494 |
| 34 | 24.7682133 | 1.1175214 |
| 35 | 24.8759885 | 1.0759665 |
| 36 | 24.9802070 | 1.0359382 |
| 37 | 25.0818114 | 0.9970625 |
| 38 | 25.1816494 | 0.9590072 |
| 39 | 25.2805128 | 0.9214608 |
| 40 | 25.3791637 | 0.8841338 |
| 41 | 25.4783564 | 0.8467420 |
| 42 | 25.5788615 | 0.8089958 |
| 43 | 25.6814942 | 0.7705990 |
| 44 | 25.7871387 | 0.7312315 |

HIGH RESOLUTION 67

| INDEX | LONGITUDE | LATITUDE |
|---|---|---|
| 1 | 25.2482567 | 0.4818536 |
| 2 | 25.2268505 | 0.4277560 |
| 3 | 25.2059524 | 0.3749330 |
| 4 | 25.1854994 | 0.3232293 |
| 5 | 25.1654358 | 0.2725006 |
| 6 | 25.1457071 | 0.2226112 |
| 7 | 25.1262622 | 0.1734330 |
| 8 | 25.1070554 | 0.1248456 |
| 9 | 25.0880401 | 0.0767355 |
| 10 | 25.0691714 | 0.0289924 |
| 11 | 25.0504076 | -0.0184944 |
| 12 | 25.0317075 | -0.0658251 |
| 13 | 25.0198252 | -0.0612514 |
| 14 | 25.0079527 | -0.0566829 |
| 15 | 24.9960854 | -0.0521169 |
| 16 | 24.9842262 | -0.0475535 |
| 17 | 24.9723706 | -0.0429909 |
| 18 | 24.9605186 | -0.0384292 |
| 19 | 24.9486661 | -0.0338675 |
| 20 | 24.9368131 | -0.0293058 |
| 21 | 24.9249573 | -0.0247424 |
| 22 | 24.9130971 | -0.0201781 |
| 23 | 24.9012325 | -0.0156130 |
| 24 | 24.9190881 | 0.0320020 |
| 25 | 24.9370010 | 0.0797715 |
| 26 | 24.9550087 | 0.1278022 |
| 27 | 24.9731553 | 0.1762018 |
| 28 | 24.9914794 | 0.2250820 |
| 29 | 25.0100253 | 0.2745591 |
| 30 | 25.0288379 | 0.3247524 |
| 31 | 25.0479665 | 0.3757910 |
| 32 | 25.0674591 | 0.4278123 |
| 33 | 25.0873723 | 0.4809597 |
| 34 | 25.1077671 | 0.5353929 |
| 35 | 25.1205404 | 0.5305187 |
| 36 | 25.1333077 | 0.5256479 |
| 37 | 25.1460721 | 0.5207789 |
| 38 | 25.1588333 | 0.5159141 |
| 39 | 25.1715944 | 0.5110493 |
| 40 | 25.1843572 | 0.5061845 |
| 41 | 25.1971235 | 0.5013214 |
| 42 | 25.2098954 | 0.4964574 |
| 43 | 25.2226725 | 0.4915918 |
| 44 | 25.2354605 | 0.4867244 |

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* PHOTO FRAME NUMBER 1 OF 4 *
**********  **********

FRAME 68

| | YEAR | MONTH | DAY | HOUR | MINUTE | SECOND |
|---|---|---|---|---|---|---|
| GMT | 67 | 2 | 16 | 20 | 47 | 53.698 |

| | | | | | |
|---|---|---|---|---|---|
| LONGITUDE OF NADIR POINT | = | 21.0155249 | DEG | LATITUDE OF NADIR POINT | = 0.5092427 DEG |
| LONG OF CAMERA AXIS INTERSECT | = | 20.9268842 | DEG | LATI OF CAMERA AXIS INTERSECT | = 0.3359659 DEG |
| SPACECRAFT RADIUS | = | 1785.8088837 | KM | SPACECRAFT ALTITUDE | = 47.7188873 KM |
| MEAN ALTITUDE RATE | = | -0.0205284 | KM/SEC | TIME FROM PERIAPSIS | = -39.7230153 SEC |
| HORIZONTAL VELOCITY | = | 1.9150335 | KM/SEC | TRUE ANOMALY | = 357.5585861 DEG |
| SCALE FACTOR (HIGH) | = | 0.0126838 | M/KM | TILT DISTANCE (HIGH) | = 75.4591579 MM |
| SCALE FACTOR (LOW) | = | 0.0016634 | M/KM | TILT DISTANCE (LOW) | = 9.8962830 MM |
| IMAGE MOTION COMPENSATION (V/H) | = | 0.0398212 | RAD/SEC | SWING ANGLE | = 6.1247262 DEG |
| EMISSION ANGLE | = | 7.2465098 | DEG | INCIDENCE ANGLE | = 72.2760181 DEG |
| PHASE ANGLE | = | 69.2936840 | DEG | NORTH DEVIATION ANGLE | = 338.8468704 DEG |
| TILT ANGLE | = | 7.0518656 | DEG | RESOLUTION CONSTANT | = 1.0436119 MIR |
| TILT AZIMUTH | = | 207.0917835 | DEG | SUN AZIMUTH AT PRINCIPAL GND PT | = 91.6695719 DEG |
| SUN ANGLE AT NADIR | = | 72.1925526 | DEG | SUN ARC AT NADIR | = 2189.9895020 KM |
| LONGITUDE DISTANCE TO TARGET | = | -0.4844751 | DEG | LATITUDE DISTANCE TO TARGET | = 0.1762427 DEG |
| LONGITUDE ARC LENGTH TO TARGET | = | -14.6967436 | KM | LATITUDE ARC LENGTH TO TARGET | = 5.3463957 KM |
| FORWARD OVERLAP RATIO | = | 0. | PCT | SIDE OVERLAP RATIO | = 0. PCT |
| TIME BETWEEN PHOTOS | = | 0. | SEC | ALPHA | = 2.8578061 DEG. |

| | X | Y | Z | MAGNITUDE (KM) |
|---|---|---|---|---|
| DIRECTION COSINES TO TARGET | -0.99108724 | -0.06765173 | -0.11475772 | 50.28290701 |
| CAMERA AXIS | -0.90542787 | -0.40773713 | -0.11811352 | 48.09271240 |
| C1 | -0.99285503 | 0.00517527 | 0.11921449 | 51.77383423 |
| C2 | -0.81435824 | -0.19870472 | -0.54528624 | 57.40289307 |
| C3 | -0.60570987 | -0.72504950 | -0.32774805 | 57.97581482 |
| C4 | -0.78420662 | -0.52116953 | 0.33675256 | 52.23767090 |

| | X | Y | Z | X DOT | Y DOT | Z DOT |
|---|---|---|---|---|---|---|
| STATE VECTOR (1950.0) | -464.3745918 | -1598.3980713 | -646.9878387 | 1.7386240 | -0.1639570 | -0.7861732 |

LONG 21.6315 DEG
LATI 0.7267 DEG

(1)

39.52493 KM

LONG 21.2172 DEG
LATI -0.5086 DEG

(2)

LOW RESOLUTION

31.54688 KM

34.99540 KM

(4)

39.90717 KM

(3)

LONG 20.6620 DEG
LATI 1.1032 DEG

LONG 20.1371 DEG
LATI -0.1032 DEG

LONG 21.0928 DEG
LATI 0.5728 DEG

(1)

17.41647 KM

LONG 20.8900 DEG
LATI 0.0357 DEG

(2)

HIGH RESOLUTION

4.24848 KM

4.44610 KM

(4)

17.43821 KM

(3)

LONG 20.9621 DEG
LATI 0.6231 DEG

LONG 20.7529 DEG
LATI 0.0877 DEG

LOW RESOLUTION 68

| INDEX | LONGITUDE | LATITUDE |
|---|---|---|
| 1 | 21.6315198 | 0.7267014 |
| 2 | 21.5940914 | 0.6163998 |
| 3 | 21.5577974 | 0.5091991 |
| 4 | 21.5222266 | 0.4039049 |
| 5 | 21.4870002 | 0.2994030 |
| 6 | 21.4517543 | 0.1946168 |
| 7 | 21.4161253 | 0.0884535 |
| 8 | 21.3797250 | -0.0202370 |
| 9 | 21.3421450 | -0.1327123 |
| 10 | 21.3029120 | -0.2504101 |
| 11 | 21.2614744 | -0.3750260 |
| 12 | 21.2171700 | -0.5086211 |
| 13 | 21.1143129 | -0.4693971 |
| 14 | 21.0147803 | -0.4315629 |
| 15 | 20.9176841 | -0.3947713 |
| 16 | 20.8222220 | -0.3587104 |
| 17 | 20.7276404 | -0.3230910 |
| 18 | 20.6332142 | -0.2876389 |
| 19 | 20.5382254 | -0.2520852 |
| 20 | 20.4419382 | -0.2161575 |
| 21 | 20.3435693 | -0.1795708 |
| 22 | 20.2422781 | -0.1420184 |
| 23 | 20.1371150 | -0.1031632 |
| 24 | 20.1943533 | 0.0270723 |
| 25 | 20.2476375 | 0.1485976 |
| 26 | 20.2978694 | 0.2634182 |
| 27 | 20.3457880 | 0.3731836 |
| 28 | 20.3920157 | 0.4792906 |
| 29 | 20.4370966 | 0.5829686 |
| 30 | 20.4815233 | 0.6853386 |
| 31 | 20.5257604 | 0.7874670 |
| 32 | 20.5702643 | 0.8904082 |
| 33 | 20.6155043 | 0.9952533 |
| 34 | 20.6619787 | 1.1031729 |
| 35 | 20.7559865 | 1.0664392 |
| 36 | 20.8466320 | 1.0310657 |
| 37 | 20.9347498 | 0.9967235 |
| 38 | 21.0210810 | 0.9631181 |
| 39 | 21.1063187 | 0.9299798 |
| 40 | 21.1911135 | 0.8970548 |
| 41 | 21.2761075 | 0.8640923 |
| 42 | 21.3619447 | 0.8308438 |
| 43 | 21.4493010 | 0.7970515 |
| 44 | 21.5388951 | 0.7624386 |

HIGH RESOLUTION 68

| INDEX | LONGITUDE | LATITUDE |
|---|---|---|
| 1 | 21.0928259 | 0.5727762 |
| 2 | 21.0748410 | 0.5251826 |
| 3 | 21.0568848 | 0.4776624 |
| 4 | 21.0389204 | 0.4301107 |
| 5 | 21.0209062 | 0.3824266 |
| 6 | 21.0028045 | 0.3345042 |
| 7 | 20.9845736 | 0.2862344 |
| 8 | 20.9661703 | 0.2375096 |
| 9 | 20.9475567 | 0.1882144 |
| 10 | 20.9286823 | 0.1382294 |
| 11 | 20.9095037 | 0.0874281 |
| 12 | 20.8899665 | 0.0356766 |
| 13 | 20.8775113 | 0.0404057 |
| 14 | 20.8650613 | 0.0451330 |
| 15 | 20.8526139 | 0.0498578 |
| 16 | 20.8401675 | 0.0545809 |
| 17 | 20.8277199 | 0.0593031 |
| 18 | 20.8152709 | 0.0640253 |
| 19 | 20.8028166 | 0.0687484 |
| 20 | 20.7903595 | 0.0734723 |
| 21 | 20.7778921 | 0.0781971 |
| 22 | 20.7654154 | 0.0829253 |
| 23 | 20.7529280 | 0.0876569 |
| 24 | 20.7730980 | 0.1392428 |
| 25 | 20.7928934 | 0.1898827 |
| 26 | 20.8123691 | 0.2397106 |
| 27 | 20.8315735 | 0.2888504 |
| 28 | 20.8505533 | 0.3374233 |
| 29 | 20.8693516 | 0.3855437 |
| 30 | 20.8880155 | 0.4333191 |
| 31 | 20.9065826 | 0.4808590 |
| 32 | 20.9250948 | 0.5282647 |
| 33 | 20.9435940 | 0.5756415 |
| 34 | 20.9621186 | 0.6230934 |
| 35 | 20.9740269 | 0.6185086 |
| 36 | 20.9859245 | 0.6139281 |
| 37 | 20.9978144 | 0.6093510 |
| 38 | 21.0096974 | 0.6047757 |
| 39 | 21.0215740 | 0.6002029 |
| 40 | 21.0334492 | 0.5956326 |
| 41 | 21.0453203 | 0.5910624 |
| 42 | 21.0571926 | 0.5864921 |
| 43 | 21.0690660 | 0.5819210 |
| 44 | 21.0809436 | 0.5773499 |

**********  **********
* PHOTO FRAME NUMBER 2 OF 4 *
**********  **********

## FRAME 69

| | YEAR | MONTH | DAY | HOUR | MINUTE | SECOND |
|---|---|---|---|---|---|---|
| GMT | 67 | 2 | 16 | 20 | 47 | 59.198 |

| | | | | | |
|---|---|---|---|---|---|
| LONGITUDE OF NADIR POINT | = | 21.5008223 | DEG | LATITUDE OF NADIR POINT | = 0.3193976 DEG |
| LONG OF CAMERA AXIS INTERSECT | = | 21.4257851 | DEG | LATI OF CAMERA AXIS INTERSECT | = 0.1415096 DEG |
| SPACECRAFT RADIUS | = | 1785.6530457 | KM | SPACECRAFT ALTITUDE | = 47.5630493 KM |
| MEAN ALTITUDE RATE | = | -0.0161390 | KM/SEC | TIME FROM PERIAPSIS | = -31.2245631 SEC |
| HORIZONTAL VELOCITY | = | 1.9151922 | KM/SEC | TRUE ANOMALY | = 358.0807991 DEG |
| SCALE FACTOR (HIGH) | = | 0.0127263 | M/KM | TILT DISTANCE (HIGH) | = 75.0981035 MM |
| SCALE FACTOR (LOW) | = | 0.0016690 | M/KM | TILT DISTANCE (LOW) | = 9.8489317 MM |
| IMAGE MOTION COMPENSATION (V/H) | = | 0.0399569 | RAD/SEC | SWING ANGLE | = 1.8688866 DEG |
| EMISSION ANGLE | = | 7.2115307 | DEG | INCIDENCE ANGLE | = 71.7705622 DEG |
| PHASE ANGLE | = | 69.2936850 | DEG | NORTH DEVIATION ANGLE | = 338.8343239 DEG |
| TILT ANGLE | = | 7.0184615 | DEG | RESOLUTION CONSTANT | = 1.0401262 MTR |
| TILT AZIMUTH | = | 202.8713970 | DEG | SUN AZIMUTH AT PRINCIPAL GND PT | = 91.6132326 DEG |
| SUN ANGLE AT NADIR | = | 71.7006569 | DEG | SUN ARC AT NADIR | = 2175.0676575 KM |
| LONGITUDE DISTANCE TO TARGET | = | 0.0008223 | DEG | LATITUDE DISTANCE TO TARGET | = -0.0136024 DEG |
| LONGITUDE ARC LENGTH TO TARGET | = | 0.0249450 | KM | LATITUDE ARC LENGTH TO TARGET | = -0.4126351 KM |
| FORWARD OVERLAP RATIO | = | 50.8848405 | PCT | SIDE OVERLAP RATIO | = 0. PCT |
| TIME BETWEEN PHOTOS | = | 8.4998131 | SEC | ALPHA | = 2.3422485 DEG. |

| | X | Y | Z | MAGNITUDE (KM) |
|---|---|---|---|---|
| DIRECTION COSINES TO TARGET | -0.93021497 | -0.36700202 | 0.00310099 | 47.56487560 |
| CAMERA AXIS | -0.90543642 | -0.40771825 | -0.11811322 | 47.93208313 |
| C1 | -0.99285489 | 0.00519596 | 0.11921483 | 51.75938416 |
| C2 | -0.81436257 | -0.19868772 | -0.54528596 | 57.40858459 |
| C3 | -0.60572509 | -0.72503686 | -0.32774786 | 57.58226013 |
| C4 | -0.78421737 | -0.52115320 | 0.33675282 | 51.85997864 |

| | X | Y | Z | X DOT | Y DOT | Z DOT |
|---|---|---|---|---|---|---|
| STATE VECTOR (1950.0) | -449.5820160 | -1599.7419739 | -653.6501083 | 1.7419633 | -0.1522538 | -0.7814120 |

LONG 22.1300 DEG
LATI 0.5316 DEG

LONG 21.7158 DEG
LATI -0.7038 DEG

(1) • 39.52430 KM • (2)

LOW RESOLUTION

31.43728 KM 34.87390 KM

(4) • 39.64017 KM • (3)

LONG 21.1630 DEG
LATI 0.9043 DEG

LONG 20.6417 DEG
LATI -0.2940 DEG

LONG 21.5912 DEG
LATI 0.3775 DEG

LONG 21.3889 DEG
LATI -0.1580 DEG

(1) • 17.36588 KM • (2)

HIGH RESOLUTION

4.23391 KM 4.43087 KM

(4) • 17.37248 KM • (3)

LONG 21.4609 DEG
LATI 0.4276 DEG

LONG 21.2525 DEG
LATI -0.1058 DEG

LOW RESOLUTION 69

| INDEX | LONGITUDE | LATITUDE |
|---|---|---|
| 1 | 22.1300032 | 0.5315526 |
| 2 | 22.0925965 | 0.4212878 |
| 3 | 22.0563238 | 0.3141170 |
| 4 | 22.0207696 | 0.2088450 |
| 5 | 21.9855633 | 0.1043568 |
| 6 | 21.9503345 | -0.0004242 |
| 7 | 21.9147213 | -0.1065885 |
| 8 | 21.8783402 | -0.2152858 |
| 9 | 21.8407774 | -0.3277774 |
| 10 | 21.8015592 | -0.4455051 |
| 11 | 21.7601397 | -0.5701611 |
| 12 | 21.7158499 | -0.7038143 |
| 13 | 21.6129043 | -0.6639294 |
| 14 | 21.5134153 | -0.6255053 |
| 15 | 21.4164891 | -0.5881877 |
| 16 | 21.3213110 | -0.5516539 |
| 17 | 21.2271268 | -0.5156101 |
| 18 | 21.1332138 | -0.4797781 |
| 19 | 21.0388577 | -0.4438837 |
| 20 | 20.9433303 | -0.4076547 |
| 21 | 20.8458624 | -0.3708050 |
| 22 | 20.7456288 | -0.3330298 |
| 23 | 20.6417048 | -0.2939918 |
| 24 | 20.6985157 | -0.1646648 |
| 25 | 20.7514088 | -0.0439736 |
| 26 | 20.8012803 | 0.0700709 |
| 27 | 20.8488607 | 0.1790978 |
| 28 | 20.8947666 | 0.2844962 |
| 29 | 20.9395397 | 0.3874877 |
| 30 | 20.9836659 | 0.4891858 |
| 31 | 21.0276101 | 0.5906474 |
| 32 | 21.0718226 | 0.6929201 |
| 33 | 21.1167705 | 0.7970873 |
| 34 | 21.1629508 | 0.9043136 |
| 35 | 21.2561798 | 0.8681452 |
| 36 | 21.3461890 | 0.8332754 |
| 37 | 21.4337862 | 0.7993814 |
| 38 | 21.5197084 | 0.7661799 |
| 39 | 21.6046343 | 0.7334018 |
| 40 | 21.6892145 | 0.7007996 |
| 41 | 21.7740846 | 0.6681257 |
| 42 | 21.8598952 | 0.6351333 |
| 43 | 21.9473209 | 0.6015621 |
| 44 | 22.0370877 | 0.5671362 |

HIGH RESOLUTION 69

| INDEX | LONGITUDE | LATITUDE |
|---|---|---|
| 1 | 21.5912149 | 0.3775447 |
| 2 | 21.5732818 | 0.3300919 |
| 3 | 21.5553770 | 0.2827109 |
| 4 | 21.5374613 | 0.2353000 |
| 5 | 21.5194983 | 0.1877551 |
| 6 | 21.5014482 | 0.1399728 |
| 7 | 21.4832697 | 0.0918438 |
| 8 | 21.4649200 | 0.0432616 |
| 9 | 21.4463577 | -0.0058928 |
| 10 | 21.4275382 | -0.0557352 |
| 11 | 21.4084148 | -0.1063896 |
| 12 | 21.3889325 | -0.1579925 |
| 13 | 21.3765259 | -0.1532387 |
| 14 | 21.3641243 | -0.1484883 |
| 15 | 21.3517268 | -0.1437405 |
| 16 | 21.3393331 | -0.1389952 |
| 17 | 21.3269415 | -0.1342508 |
| 18 | 21.3145487 | -0.1295081 |
| 19 | 21.3021545 | -0.1247654 |
| 20 | 21.2897563 | -0.1200218 |
| 21 | 21.2773514 | -0.1152765 |
| 22 | 21.2649410 | -0.1105312 |
| 23 | 21.2525201 | -0.1057834 |
| 24 | 21.2726135 | -0.0543931 |
| 25 | 21.2923338 | -0.0039427 |
| 26 | 21.3117380 | 0.0456974 |
| 27 | 21.3308694 | 0.0946528 |
| 28 | 21.3497791 | 0.1430421 |
| 29 | 21.3685086 | 0.1909789 |
| 30 | 21.3871036 | 0.2385734 |
| 31 | 21.4056041 | 0.2859331 |
| 32 | 21.4240499 | 0.3331604 |
| 33 | 21.4424810 | 0.3803579 |
| 34 | 21.4609404 | 0.4276296 |
| 35 | 21.4727986 | 0.4230696 |
| 36 | 21.4846499 | 0.4185130 |
| 37 | 21.4964948 | 0.4139581 |
| 38 | 21.5083342 | 0.4094058 |
| 39 | 21.5201712 | 0.4048552 |
| 40 | 21.5320065 | 0.4003046 |
| 41 | 21.5438416 | 0.3957557 |
| 42 | 21.5556793 | 0.3912051 |
| 43 | 21.5675194 | 0.3866536 |
| 44 | 21.5793648 | 0.3821004 |

**********
* PHOTO FRAME NUMBER 3 OF 4 * FRAME 70
**********

| | YEAR | MONTH | DAY | HOUR | MINUTE | SECOND |
|---|---|---|---|---|---|---|
| GMT | 67 | 2 | 16 | 20 | 48 | 7.798 |

| | | | | | |
|---|---|---|---|---|---|
| LONGITUDE OF NADIR POINT | = | 21.9919379 | DEG | LATITUDE OF NADIR POINT | = | 0.1272447 | DEG |
| LONG OF CAMERA AXIS INTERSECT | = | 21.9305229 | DEG | LATI OF CAMERA AXIS INTERSECT | = | -0.0554441 | DEG |
| SPACECRAFT RADIUS | = | 1785.5333405 | KM | SPACECRAFT ALTITUDE | = | 47.4433441 | KM |
| MEAN ALTITUDE RATE | = | -0.0116952 | KM/SEC | TIME FROM PERIAPSIS | = | -22.6245253 | SEC |
| HORIZONTAL VELOCITY | = | 1.9153152 | KM/SEC | TRUE ANOMALY | = | 358.6093330 | DEG |
| SCALE FACTOR (HIGH) | = | 0.0127583 | M/KM | TILT DISTANCE (HIGH) | = | 75.1572113 | MM |
| SCALE FACTOR (LOW) | = | 0.0016732 | M/KM | TILT DISTANCE (LOW) | = | 9.8566835 | MM |
| IMAGE MOTION COMPENSATION (V/H) | = | 0.0400569 | RAD/SEC | SWING ANGLE | = | 357.5445061 | DEG |
| EMISSION ANGLE | = | 7.2166706 | DEG | INCIDENCE ANGLE | = | 71.2593641 | DEG |
| PHASE ANGLE | = | 69.2936888 | DEG | NORTH DEVIATION ANGLE | = | 338.8250809 | DEG |
| TILT ANGLE | = | 7.0239304 | DEG | RESOLUTION CONSTANT | = | 1.0375203 | MTR |
| TILT AZIMUTH | = | 198.5814056 | DEG | SUN AZIMUTH AT PRINCIPAL GND PT | = | 91.5524673 | DEG |
| SUN ANGLE AT NADIR | = | 71.2030210 | DEG | SUN ARC AT NADIR | = | 2159.9716492 | KM |
| LONGITUDE DISTANCE TO TARGET | = | 0.4919379 | DEG | LATITUDE DISTANCE TO TARGET | = | -0.2057553 | DEG |
| LONGITUDE ARC LENGTH TO TARGET | = | 14.9231288 | KM | LATITUDE ARC LENGTH TO TARGET | = | -6.2416675 | KM |
| FORWARD OVERLAP RATIO | = | 50.1283278 | PCT | SIDE OVERLAP RATIO | = | 0. | PCT |
| TIME BETWEEN PHOTOS | = | 8.6002350 | SEC | ALPHA | = | 1.8202794 | DEG. |

| | X | Y | Z | MAGNITUDE (KM) |
|---|---|---|---|---|
| DIRECTION COSINES TO TARGET | -0.76670066 | -0.63025867 | 0.12224607 | 50.19625807 |
| CAMERA AXIS | -0.90544511 | -0.40769902 | -0.11811291 | 47.81199646 |
| C1 | -0.99285473 | 0.00521704 | 0.11921518 | 51.79078674 |
| C2 | -0.81436699 | -0.19867042 | -0.54528568 | 57.46575928 |
| C3 | -0.60574059 | -0.72502399 | -0.32774767 | 57.23799133 |
| C4 | -0.78422831 | -0.52113657 | 0.33675309 | 51.60639954 |

| | X | Y | Z | X DOT | Y DOT | Z DOT |
|---|---|---|---|---|---|---|
| STATE VECTOR (1950.0) | -434.5852280 | -1601.0005341 | -660.3501434 | 1.7452326 | -0.1403992 | -0.7765441 |

LONG 22.6350 DEG
LATI 0.3343 DEG

LONG 22.2207 DEG
LATI -0.9023 DEG

* 39.55901 KM *
(1) (2)

LOW RESOLUTION

31.35797 KM 34.78712 KM

(4) (3)
* *
39.40702 KM

LONG 21.6695 DEG
LATI 0.7036 DEG

LONG 21.1514 DEG
LATI -0.4877 DEG

LONG 22.0956 DEG
LATI 0.1800 DEG

LONG 21.8937 DEG
LATI -0.3544 DEG

* 17.33007 KM *
(1) (2)

HIGH RESOLUTION

4.22329 KM 4.41983 KM

(4) (3)
* *
17.32142 KM

LONG 21.9656 DEG
LATI 0.2299 DEG

LONG 21.7578 DEG
LATI -0.3019 DEG

LOW RESOLUTION 70

| INDEX | LONGITUDE | LATITUDE |
|---|---|---|
| 1 | 22.6349852 | 0.3342524 |
| 2 | 22.5975690 | 0.2239260 |
| 3 | 22.5612857 | 0.1166878 |
| 4 | 22.5257256 | 0.0113404 |
| 5 | 22.4905086 | -0.0932287 |
| 6 | 22.4552701 | -0.1980951 |
| 7 | 22.4196470 | -0.3043549 |
| 8 | 22.3832536 | -0.4131590 |
| 9 | 22.3456759 | -0.5257717 |
| 10 | 22.3064463 | -0.6436343 |
| 11 | 22.2650096 | -0.7684466 |
| 12 | 22.2207026 | -0.9022808 |
| 13 | 22.1175611 | -0.8616847 |
| 14 | 22.0180182 | -0.8226280 |
| 15 | 21.9211640 | -0.7847409 |
| 16 | 21.8261781 | -0.7476965 |
| 17 | 21.7323027 | -0.7111926 |
| 18 | 21.6388142 | -0.6749456 |
| 19 | 21.5450003 | -0.6386799 |
| 20 | 21.4501407 | -0.6021187 |
| 21 | 21.3534801 | -0.5649745 |
| 22 | 21.2542059 | -0.5269465 |
| 23 | 21.1514170 | -0.4876968 |
| 24 | 21.2078464 | -0.3591604 |
| 25 | 21.2603936 | -0.2391992 |
| 26 | 21.3099442 | -0.1258377 |
| 27 | 21.3572257 | -0.0174554 |
| 28 | 21.4028471 | 0.0873299 |
| 29 | 21.4473484 | 0.1897247 |
| 30 | 21.4912119 | 0.2908371 |
| 31 | 21.5348949 | 0.3917182 |
| 32 | 21.5788538 | 0.4934120 |
| 33 | 21.6235447 | 0.5969910 |
| 34 | 21.6694636 | 0.7036162 |
| 35 | 21.7620108 | 0.6679814 |
| 36 | 21.8514662 | 0.6335820 |
| 37 | 21.9386296 | 0.6001089 |
| 38 | 22.0242233 | 0.5672805 |
| 39 | 22.1089196 | 0.5348371 |
| 40 | 22.1933658 | 0.5025294 |
| 41 | 22.2781959 | 0.4701185 |
| 42 | 22.3640625 | 0.4373524 |
| 43 | 22.4516439 | 0.4039766 |
| 44 | 22.5416808 | 0.3697122 |

HIGH RESOLUTION 70

| INDEX | LONGITUDE | LATITUDE |
|---|---|---|
| 1 | 22.0955846 | 0.1800199 |
| 2 | 22.0776863 | 0.1326679 |
| 3 | 22.0598164 | 0.0853859 |
| 4 | 22.0419390 | 0.0380749 |
| 5 | 22.0240135 | -0.0093724 |
| 6 | 22.0060003 | -0.0570577 |
| 7 | 21.9878588 | -0.1050867 |
| 8 | 21.9695463 | -0.1535708 |
| 9 | 21.9510238 | -0.2026218 |
| 10 | 21.9322441 | -0.2523618 |
| 11 | 21.9131591 | -0.3029138 |
| 12 | 21.8937206 | -0.3544125 |
| 13 | 21.8813477 | -0.3496297 |
| 14 | 21.8689835 | -0.3448511 |
| 15 | 21.8566248 | -0.3400751 |
| 16 | 21.8442721 | -0.3353042 |
| 17 | 21.8319232 | -0.3305342 |
| 18 | 21.8195755 | -0.3257659 |
| 19 | 21.8072290 | -0.3209984 |
| 20 | 21.7948785 | -0.3162326 |
| 21 | 21.7825263 | -0.3114660 |
| 22 | 21.7701662 | -0.3066977 |
| 23 | 21.7578018 | -0.3019268 |
| 24 | 21.7778337 | -0.2506876 |
| 25 | 21.7974975 | -0.2003875 |
| 26 | 21.8168416 | -0.1508942 |
| 27 | 21.8359172 | -0.1020831 |
| 28 | 21.8547719 | -0.0538364 |
| 29 | 21.8734477 | -0.0060384 |
| 30 | 21.8919876 | 0.0414183 |
| 31 | 21.9104347 | 0.0886371 |
| 32 | 21.9288266 | 0.1357252 |
| 33 | 21.9472063 | 0.1827844 |
| 34 | 21.9656117 | 0.2299153 |
| 35 | 21.9774351 | 0.2253766 |
| 36 | 21.9892514 | 0.2208396 |
| 37 | 22.0010641 | 0.2163044 |
| 38 | 22.0128710 | 0.2117709 |
| 39 | 22.0246780 | 0.2072382 |
| 40 | 22.0364859 | 0.2027046 |
| 41 | 22.0482950 | 0.1981720 |
| 42 | 22.0601094 | 0.1936376 |
| 43 | 22.0719261 | 0.1891006 |
| 44 | 22.0837514 | 0.1845628 |

**********  **********
* PHOTO FRAME NUMBER 4 OF 4 * FRAME 71
**********  **********

| | YEAR | MONTH | DAY | HOUR | MINUTE | SECOND |
|---|---|---|---|---|---|---|
| GMT | 67 | 2 | 16 | 20 | 48 | 16.299 |

| | | | | | |
|---|---|---|---|---|---|
| LONGITUDE OF NADIR POINT | = | 22.4772732 | DEG | LATITUDE OF NADIR POINT | = | -0.0626636 | DEG |
| LONG OF CAMERA AXIS INTERSECT | = | 22.4292181 | DEG | LATI OF CAMERA AXIS INTERSECT | = | -0.2502308 | DEG |
| SPACECRAFT RADIUS | = | 1785.4526062 | KM | SPACECRAFT ALTITUDE | = | 47.3626099 | KM |
| MEAN ALTITUDE RATE | = | -0.0073025 | KM/SEC | TIME FROM PERIAPSIS | = | -14.1257568 | SEC |
| HORIZONTAL VELOCITY | = | 1.9153963 | KM/SEC | TRUE ANOMALY | = | 359.1316986 | DEG |
| SCALE FACTOR (HIGH) | = | 0.0127788 | M/KM | TILT DISTANCE (HIGH) | = | 75.6342278 | MM |
| SCALE FACTOR (LOW) | = | 0.0016759 | M/KM | TILT DISTANCE (LOW) | = | 9.9192431 | MM |
| IMAGE MOTION COMPENSATION (V/H) | = | 0.0401185 | RAD/SEC | SWING ANGLE | = | 353.3010483 | DEG |
| EMISSION ANGLE | = | 7.2616894 | DEG | INCIDENCE ANGLE | = | 70.7544785 | DEG |
| PHASE ANGLE | = | 69.2936897 | DEG | NORTH DEVIATION ANGLE | = | 338.8193779 | DEG |
| TILT ANGLE | = | 7.0680612 | DEG | RESOLUTION CONSTANT | = | 1.0358558 | MIR |
| TILT AZIMUTH | = | 194.3701897 | DEG | SUN AZIMUTH AT PRINCIPAL GND PT | = | 91.4886770 | DEG |
| SUN ANGLE AT NADIR | = | 70.7114191 | DEG | SUN ARC AT NADIR | = | 2145.0587158 | KM |
| LONGITUDE DISTANCE TO TARGET | = | 0.9772732 | DEG | LATITUDE DISTANCE TO TARGET | = | -0.3956636 | DEG |
| LONGITUDE ARC LENGTH TO TARGET | = | 29.6459675 | KM | LATITUDE ARC LENGTH TO TARGET | = | -12.0026098 | KM |
| FORWARD OVERLAP RATIO | = | 50.5963311 | PCT | SIDE OVERLAP RATIO | = | 0. | PCT |
| TIME BETWEEN PHOTOS | = | 8.5004568 | SEC | ALPHA | = | 1.3041961 | DEG. |

| | X | Y | Z | MAGNITUDE (KM) |
|---|---|---|---|---|
| DIRECTION COSINES TO TARGET | -0.56959267 | -0.79463942 | 0.21002948 | 57.39336777 |
| CAMERA AXIS | -0.90545371 | -0.40768001 | -0.11811261 | 47.73529053 |
| C1 | -0.99285459 | 0.00523787 | 0.11921553 | 51.86773682 |
| C2 | -0.81437135 | -0.19865331 | -0.54528540 | 57.57363892 |
| C3 | -0.60575593 | -0.72501127 | -0.32774749 | 56.95056152 |
| C4 | -0.78423914 | -0.52112011 | 0.33675334 | 51.36337280 |

| | X | Y | Z | X DOT | Y DOT | Z DOT |
|---|---|---|---|---|---|---|
| STATE VECTOR (1950.0) | -419.7391701 | -1602.1439667 | -666.9293747 | 1.7483542 | -0.1286746 | -0.7716849 |

LONG 23.1346 DEG
LATI 0.1395 DEG

(1) *

39.62860 KM

LONG 22.7198 DEG
LATI -1.0993 DEG

(2) *

LOW RESOLUTION

31.31080 KM

34.73707 KM

(4) *

39.21287 KM

(3) *

LONG 22.1696 DEG
LATI 0.5058 DEG

LONG 21.6543 DEG
LATI -0.6797 DEG

LONG 22.5941 DEG
LATI -0.0151 DEG

(1) *

17.30987 KM

LONG 22.3924 DEG
LATI -0.5489 DEG

(2) *

HIGH RESOLUTION

4.21688 KM

4.41324 KM

(4) *

17.28623 KM

(3) *

LONG 22.4643 DEG
LATI 0.0346 DEG

LONG 22.2569 DEG
LATI -0.4961 DEG

LOW RESOLUTION 71

| INDEX | LONGITUDE | LATITUDE |
|---|---|---|
| 1 | 23.1345823 | 0.1394682 |
| 2 | 23.0971272 | 0.0289830 |
| 3 | 23.0608077 | -0.0784208 |
| 4 | 23.0252087 | -0.1839344 |
| 5 | 22.9899549 | -0.2886737 |
| 6 | 22.9546790 | -0.3937220 |
| 7 | 22.9190147 | -0.5001730 |
| 8 | 22.8825819 | -0.6091820 |
| 9 | 22.8449640 | -0.7220150 |
| 10 | 22.8056884 | -0.8401201 |
| 11 | 22.7642057 | -0.9651996 |
| 12 | 22.7198436 | -1.0993351 |
| 13 | 22.6164043 | -1.0579937 |
| 14 | 22.5167065 | -1.0182710 |
| 15 | 22.4198291 | -0.9797872 |
| 16 | 22.3249395 | -0.9422032 |
| 17 | 22.2312758 | -0.9052135 |
| 18 | 22.1381118 | -0.8685268 |
| 19 | 22.0447388 | -0.8318624 |
| 20 | 21.9504428 | -0.7949435 |
| 21 | 21.8544774 | -0.7574825 |
| 22 | 21.7560425 | -0.7191737 |
| 23 | 21.6542597 | -0.6796858 |
| 24 | 21.7103634 | -0.5518118 |
| 25 | 21.7626154 | -0.4324585 |
| 26 | 21.8118939 | -0.3196648 |
| 27 | 21.8589206 | -0.2118178 |
| 28 | 21.9043031 | -0.1075464 |
| 29 | 21.9485731 | -0.0056467 |
| 30 | 21.9922140 | 0.0949823 |
| 31 | 22.0356810 | 0.1953844 |
| 32 | 22.0794241 | 0.2965975 |
| 33 | 22.1238995 | 0.3996933 |
| 34 | 22.1696019 | 0.5058225 |
| 35 | 22.2615702 | 0.4706743 |
| 36 | 22.3505721 | 0.4367069 |
| 37 | 22.4373937 | 0.4036138 |
| 38 | 22.5227485 | 0.3711243 |
| 39 | 22.6073031 | 0.3389797 |
| 40 | 22.6916983 | 0.3069376 |
| 41 | 22.7765746 | 0.2747546 |
| 42 | 22.8625815 | 0.2421857 |
| 43 | 22.9504056 | 0.2089722 |
| 44 | 23.0407951 | 0.1748358 |

HIGH RESOLUTION 71

| INDEX | LONGITUDE | LATITUDE |
|---|---|---|
| 1 | 22.5940585 | -0.0151272 |
| 2 | 22.5761819 | -0.0624219 |
| 3 | 22.5583334 | -0.1096476 |
| 4 | 22.5404768 | -0.1569031 |
| 5 | 22.5225728 | -0.2042935 |
| 6 | 22.5045807 | -0.2519221 |
| 7 | 22.4864621 | -0.2998957 |
| 8 | 22.4681752 | -0.3483234 |
| 9 | 22.4496753 | -0.3973198 |
| 10 | 22.4309187 | -0.4470034 |
| 11 | 22.4118593 | -0.4974990 |
| 12 | 22.3924453 | -0.5489406 |
| 13 | 22.3800945 | -0.5441244 |
| 14 | 22.3677528 | -0.5393143 |
| 15 | 22.3554215 | -0.5345084 |
| 16 | 22.3430963 | -0.5297051 |
| 17 | 22.3307786 | -0.5249060 |
| 18 | 22.3184621 | -0.5201095 |
| 19 | 22.3061495 | -0.5153139 |
| 20 | 22.2938349 | -0.5105199 |
| 21 | 22.2815206 | -0.5057260 |
| 22 | 22.2692020 | -0.5009329 |
| 23 | 22.2568791 | -0.4961372 |
| 24 | 22.2768686 | -0.4450013 |
| 25 | 22.2964892 | -0.3948020 |
| 26 | 22.3157926 | -0.3454086 |
| 27 | 22.3348286 | -0.2966966 |
| 28 | 22.3536427 | -0.2485463 |
| 29 | 22.3722806 | -0.2008477 |
| 30 | 22.3907824 | -0.1534889 |
| 31 | 22.4091902 | -0.1063648 |
| 32 | 22.4275465 | -0.0593723 |
| 33 | 22.4458890 | -0.0124084 |
| 34 | 22.4642577 | 0.0346291 |
| 35 | 22.4760559 | 0.0301058 |
| 36 | 22.4878500 | 0.0255850 |
| 37 | 22.4996402 | 0.0210643 |
| 38 | 22.5114286 | 0.0165461 |
| 39 | 22.5232184 | 0.0120253 |
| 40 | 22.5350103 | 0.0075055 |
| 41 | 22.5468061 | 0.0029844 |
| 42 | 22.5586069 | -0.0015386 |
| 43 | 22.5704153 | -0.0060641 |
| 44 | 22.5822322 | -0.0105927 |

**********  **********
* PHOTO FRAME NUMBER 1 OF 1 * FRAME 72
**********  **********

| | YEAR | MONTH | DAY | HOUR | MINUTE | SECOND |
|---|---|---|---|---|---|---|
| GMT | 67 | 2 | 17 | 0 | 17 | 48.600 |

| | | | | | |
|---|---|---|---|---|---|
| LONGITUDE OF NADIR POINT | = | 24.0140901 | DEG | LATITUDE OF NADIR POINT = | -1.4349621 DEG |
| LONG OF CAMERA AXIS INTERSECT | = | 24.2473132 | DEG | LATI OF CAMERA AXIS INTERSECT = | -0.8403976 DEG |
| SPACECRAFT RADIUS | = | 1785.4874115 | KM | SPACECRAFT ALTITUDE = | 47.3974152 KM |
| MEAN ALTITUDE RATE | = | 0.0236073 | KM/SEC | TIME FROM PERIAPSIS = | 45.6480021 SEC |
| HORIZONTAL VELOCITY | = | 1.9152187 | KM/SEC | TRUE ANOMALY = | 2.8066077 DEG |
| SCALE FACTOR (HIGH) | = | 0.0118899 | M/KM | TILT DISTANCE (HIGH) = | 248.7655024 MM |
| SCALE FACTOR (LOW) | = | 0.0015593 | M/KM | TILT DISTANCE (LOW) = | 32.6251149 MM |
| IMAGE MOTION COMPENSATION (V/H) | = | 0.0373310 | RAD/SEC | SWING ANGLE = | 180.6345215 DEG |
| EMISSION ANGLE | = | 22.8249743 | DEG | INCIDENCE ANGLE = | 67.1525068 DEG |
| PHASE ANGLE | = | 76.4252262 | DEG | NORTH DEVIATION ANGLE = | 337.5872917 DEG |
| TILT ANGLE | = | 22.1863198 | DEG | RESOLUTION CONSTANT = | 1.1132948 MTR |
| TILT AZIMUTH | = | 21.4164162 | DEG | SUN AZIMUTH AT PRINCIPAL GND PT = | 91.2590790 DEG |
| SUN ANGLE AT NADIR | = | 67.3738527 | DEG | SUN ARC AT NADIR = | 2043.8123474 KM |
| LONGITUDE DISTANCE TO TARGET | = | -0.1859100 | DEG | LATITUDE DISTANCE TO TARGET = | -0.8519621 DEG |
| LONGITUDE ARC LENGTH TO TARGET | = | -5.6396526 | KM | LATITUDE ARC LENGTH TO TARGET = | -25.8446052 KM |
| FORWARD OVERLAP RATIO | = | 0. | PCT | SIDE OVERLAP RATIO = | 0. PCT |
| TIME BETWEEN PHOTOS | = | 0. | SEC | ALPHA = | -10.8637947 DEG. |

| | X | Y | Z | MAGNITUDE (KM) |
|---|---|---|---|---|
| DIRECTION COSINES TO TARGET | -0.82947773 | -0.25617909 | 0.49632552 | 54.45479345 |
| CAMERA AXIS | -0.89362190 | -0.24717858 | 0.37462335 | 51.30390930 |
| C1 | -0.85493746 | -0.12368503 | 0.50376974 | 56.49661255 |
| C2 | -0.93658997 | -0.28678063 | 0.20138549 | 48.54627591 |
| C3 | -0.90243618 | -0.36240996 | 0.23295483 | 48.52731323 |
| C4 | -0.82078368 | -0.19931438 | 0.53533907 | 56.47080994 |

| | X | Y | Z | X DOT | Y DOT | Z DOT |
|---|---|---|---|---|---|---|
| STATE VECTOR (1950.0) | -313.5783157 | -1606.6481934 | -712.9625244 | 1.7670809 | -0.0437881 | -0.7376499 |

LONG 25.2338 DEG
LATI -0.2372 DEG

(1) * 47.48083 KM * (2)

LONG 24.4871 DEG
LATI -1.6129 DEG

LOW RESOLUTION

42.84233 KM 30.21191 KM

(4) * 47.29035 KM * (3)

LONG 23.9116 DEG
LATI 0.2591 DEG

LONG 23.5559 DEG
LATI -1.2588 DEG

LONG 24.4517 DEG
LATI -0.5357 DEG

(1) * 20.13038 KM * (2)

LONG 24.2049 DEG
LATI -1.1517 DEG

HIGH RESOLUTION

5.01501 KM 4.30942 KM

(4) * 20.12048 KM * (3)

LONG 24.2970 DEG
LATI -0.4774 DEG

LONG 24.0720 DEG
LATI -1.1014 DEG

LOW RESOLUTION 72

| INDEX | LONGITUDE | LATITUDE |
|---|---|---|
| 1 | 25.2338266 | -0.2371877 |
| 2 | 25.1323011 | -0.4225590 |
| 3 | 25.0432475 | -0.5855914 |
| 4 | 24.9636750 | -0.7316114 |
| 5 | 24.8914006 | -0.8645141 |
| 6 | 24.8247910 | -0.9872372 |
| 7 | 24.7625742 | -1.1020698 |
| 8 | 24.7037368 | -1.2108465 |
| 9 | 24.6474421 | -1.3150872 |
| 10 | 24.5929790 | -1.4160877 |
| 11 | 24.5397203 | -1.5150008 |
| 12 | 24.4870906 | -1.6128843 |
| 13 | 24.3972487 | -1.5787393 |
| 14 | 24.3105226 | -1.5457734 |
| 15 | 24.2261260 | -1.5136894 |
| 16 | 24.1433578 | -1.4822202 |
| 17 | 24.0615611 | -1.4511155 |
| 18 | 23.9801114 | -1.4201397 |
| 19 | 23.8983989 | -1.3890590 |
| 20 | 23.8157990 | -1.3576384 |
| 21 | 23.7316675 | -1.3256296 |
| 22 | 23.6453052 | -1.2927678 |
| 23 | 23.5559387 | -1.2587603 |
| 24 | 23.5816600 | -1.1509791 |
| 25 | 23.6075864 | -1.0420299 |
| 26 | 23.6339936 | -0.9307430 |
| 27 | 23.6611745 | -0.8158516 |
| 28 | 23.6894619 | -0.6959177 |
| 29 | 23.7192373 | -0.5692630 |
| 30 | 23.7509615 | -0.4338545 |
| 31 | 23.7852068 | -0.2871574 |
| 32 | 23.8226931 | -0.1259128 |
| 33 | 23.8643820 | 0.0542044 |
| 34 | 23.9115691 | 0.2591041 |
| 35 | 24.0380630 | 0.2099660 |
| 36 | 24.1602814 | 0.1628232 |
| 37 | 24.2793531 | 0.1172120 |
| 38 | 24.3962958 | 0.0727202 |
| 39 | 24.5120583 | 0.0289719 |
| 40 | 24.6275494 | -0.0143835 |
| 41 | 24.7436702 | -0.0576784 |
| 42 | 24.8613396 | -0.1012490 |
| 43 | 24.9815297 | -0.1454420 |
| 44 | 25.1052995 | -0.1906229 |

HIGH RESOLUTION 72

| INDEX | LONGITUDE | LATITUDE |
|---|---|---|
| 1 | 24.4516795 | -0.5357276 |
| 2 | 24.4254551 | -0.6011437 |
| 3 | 24.4002700 | -0.6639806 |
| 4 | 24.3760095 | -0.7245183 |
| 5 | 24.3525705 | -0.7830103 |
| 6 | 24.3298645 | -0.8396838 |
| 7 | 24.3078079 | -0.8947403 |
| 8 | 24.2863262 | -0.9483658 |
| 9 | 24.2653530 | -1.0007277 |
| 10 | 24.2448273 | -1.0519831 |
| 11 | 24.2246873 | -1.1022738 |
| 12 | 24.2048824 | -1.1517355 |
| 13 | 24.1927867 | -1.1471516 |
| 14 | 24.1807015 | -1.1425702 |
| 15 | 24.1686206 | -1.1379915 |
| 16 | 24.1565461 | -1.1334135 |
| 17 | 24.1444750 | -1.1288364 |
| 18 | 24.1324074 | -1.1242594 |
| 19 | 24.1203384 | -1.1196806 |
| 20 | 24.1082687 | -1.1151026 |
| 21 | 24.0961950 | -1.1105213 |
| 22 | 24.0841181 | -1.1059374 |
| 23 | 24.0720334 | -1.1013501 |
| 24 | 24.0901098 | -1.0512557 |
| 25 | 24.1084855 | -1.0003196 |
| 26 | 24.1272106 | -0.9484059 |
| 27 | 24.1463382 | -0.8953703 |
| 28 | 24.1659245 | -0.8410550 |
| 29 | 24.1860311 | -0.7852873 |
| 30 | 24.2067273 | -0.7278813 |
| 31 | 24.2280812 | -0.6686303 |
| 32 | 24.2501812 | -0.6073063 |
| 33 | 24.2731178 | -0.5436540 |
| 34 | 24.2969894 | -0.4773858 |
| 35 | 24.3110369 | -0.4827057 |
| 36 | 24.3251173 | -0.4880196 |
| 37 | 24.3391724 | -0.4933283 |
| 38 | 24.3532255 | -0.4986337 |
| 39 | 24.3672767 | -0.5039365 |
| 40 | 24.3813286 | -0.5092367 |
| 41 | 24.3953841 | -0.5145352 |
| 42 | 24.4094453 | -0.5198320 |
| 43 | 24.4235127 | -0.5251297 |
| 44 | 24.4375911 | -0.5304274 |

**********
* PHOTO FRAME NUMBER 1 OF 1 * FRAME 73
**********

| | YEAR | MONTH | DAY | HOUR | MINUTE | SECOND |
|---|---|---|---|---|---|---|
| GMT | 67 | 2 | 17 | 3 | 41 | 29.600 |

| | | | | | |
|---|---|---|---|---|---|
| LONGITUDE OF NADIR POINT | = | 5.5422513 | DEG | LATITUDE OF NADIR POINT | = 5.0127739 DEG |
| LONG OF CAMERA AXIS INTERSECT | = | 6.5048773 | DEG | LATI OF CAMERA AXIS INTERSECT | = 7.5429184 DEG |
| SPACECRAFT RADIUS | = | 1800.0786896 | KM | SPACECRAFT ALTITUDE | = 61.9886932 KM |
| MEAN ALTITUDE RATE | = | -0.1251340 | KM/SEC | TIME FROM PERIAPSIS | = -245.6843796 SEC |
| HORIZONTAL VELOCITY | = | 1.8997334 | KM/SEC | TRUE ANOMALY | = 344.9719009 DEG |
| SCALE FACTOR (HIGH) | = | 0.0058657 | M/KM | TILT DISTANCE (HIGH) | = 782.7313843 MM |
| SCALE FACTOR (LOW) | = | 0.0007693 | M/KM | TILT DISTANCE (LOW) | = 102.6532965 MM |
| IMAGE MOTION COMPENSATION (V/H) | = | 0.0182941 | RAD/SEC | SWING ANGLE | = 177.2533038 DEG |
| EMISSION ANGLE | = | 54.7749228 | DEG | INCIDENCE ANGLE | = 83.4443655 DEG |
| PHASE ANGLE | = | 100.9632607 | DEG | NORTH DEVIATION ANGLE | = 323.9258766 DEG |
| TILT ANGLE | = | 52.0699196 | DEG | RESOLUTION CONSTANT | = 2.2566803 MTR |
| TILT AZIMUTH | = | 20.6650240 | DEG | SUN AZIMUTH AT PRINCIPAL GND PT | = 92.3803530 DEG |
| SUN ANGLE AT NADIR | = | 84.3040590 | DEG | SUN ARC AT NADIR | = 2557.3967896 KM |
| LONGITUDE DISTANCE TO TARGET | = | -0.7907487 | DEG | LATITUDE DISTANCE TO TARGET | = -2.7372261 DEG |
| LONGITUDE ARC LENGTH TO TARGET | = | -23.9876714 | KM | LATITUDE ARC LENGTH TO TARGET | = -83.0348291 KM |
| FORWARD OVERLAP RATIO | = | 0. | PCT | SIDE OVERLAP RATIO | = 0. PCT |
| TIME BETWEEN PHOTOS | = | 0. | SEC | ALPHA | = -21.5704391 DEG. |

| | X | Y | Z | MAGNITUDE (KM) |
|---|---|---|---|---|
| DIRECTION COSINES TO TARGET | -0.67965308 | 0.15605184 | 0.71674229 | 107.56460190 |
| CAMERA AXIS | -0.70055385 | 0.21168713 | 0.68147845 | 103.99448395 |
| C1 | -0.56809691 | 0.30747888 | 0.76336272 | 142.53857422 |
| C2 | -0.81791199 | 0.19045250 | 0.54290683 | 84.40571594 |
| C3 | -0.80959411 | 0.10881953 | 0.57681512 | 84.81341553 |
| C4 | -0.55977904 | 0.22584590 | 0.79727101 | 143.78402710 |

| | X | Y | Z | X DOT | Y DOT | Z DOT |
|---|---|---|---|---|---|---|
| STATE VECTOR (1950.0) | -809.8987503 | -1535.7705994 | -475.1378937 | 1.6262773 | -0.4360170 | -0.8886830 |

LONG 12.9045 DEG
LATI 13.4845 DEG

LONG 6.6114 DEG
LATI 5.8392 DEG

298.20884 KM

(1) (2)

LOW RESOLUTION

262.49914 KM 46.00165 KM

(4) (3)

76.87106 KM

LONG 6.4073 DEG
LATI 19.2257 DEG

LONG 5.2148 DEG
LATI 6.4489 DEG

LONG 7.2586 DEG
LATI 8.8064 DEG

LONG 6.2947 DEG
LATI 6.7109 DEG

69.85518 KM

(1) (2)

HIGH RESOLUTION

12.77143 KM 7.52315 KM

(4) (3)

70.69844 KM

LONG 6.8806 DEG
LATI 9.0008 DEG

LONG 6.0674 DEG
LATI 6.8137 DEG

HIGH RESOLUTION 73

| INDEX | LONGITUDE | LATITUDE |
|---|---|---|
| 1 | 7.2585570 | 8.8064206 |
| 2 | 7.1116709 | 8.4884641 |
| 3 | 6.9848127 | 8.2134364 |
| 4 | 6.8736449 | 7.9721113 |
| 5 | 6.7750387 | 7.7578158 |
| 6 | 6.6866698 | 7.5655853 |
| 7 | 6.6067669 | 7.3916237 |
| 8 | 6.5339520 | 7.2329781 |
| 9 | 6.4671342 | 7.0872996 |
| 10 | 6.4054359 | 6.9527030 |
| 11 | 6.3481420 | 6.8276474 |
| 12 | 6.2946625 | 6.7108597 |
| 13 | 6.2740589 | 6.7201402 |
| 14 | 6.2534533 | 6.7294310 |
| 15 | 6.2328423 | 6.7387303 |
| 16 | 6.2122232 | 6.7480432 |
| 17 | 6.1915926 | 6.7573673 |
| 18 | 6.1709476 | 6.7667075 |
| 19 | 6.1502851 | 6.7760632 |
| 20 | 6.1296021 | 6.7854359 |
| 21 | 6.1088953 | 6.7948275 |
| 22 | 6.0881618 | 6.8042403 |
| 23 | 6.0673984 | 6.8136745 |
| 24 | 6.1124587 | 6.9350051 |
| 25 | 6.1607375 | 7.0649913 |
| 26 | 6.2127334 | 7.2049726 |
| 27 | 6.2690514 | 7.3565704 |
| 28 | 6.3304336 | 7.5217773 |
| 29 | 6.3978043 | 7.7030693 |
| 30 | 6.4723310 | 7.9035738 |
| 31 | 6.5555167 | 8.1273128 |
| 32 | 6.6493363 | 8.3795679 |
| 33 | 6.7564519 | 8.6674476 |
| 34 | 6.8805642 | 9.0008223 |
| 35 | 6.9151536 | 8.9827274 |
| 36 | 6.9496790 | 8.9647256 |
| 37 | 6.9841470 | 8.9468176 |
| 38 | 7.0185637 | 8.9289968 |
| 39 | 7.0529353 | 8.9112597 |
| 40 | 7.0872676 | 8.8936037 |
| 41 | 7.1215674 | 8.8760253 |
| 42 | 7.1558402 | 8.8585221 |
| 43 | 7.1900919 | 8.8410872 |
| 44 | 7.2243289 | 8.8237214 |

CORNER 4 OF LOW RESOLUTION FRAME 1 IS OFF THE MOON

LOW RESOLUTION 73

| INDEX | LONGITUDE | LATITUDE |
|---|---|---|
| 1 | 12.9045168 | 13.4844708 |
| 2 | 10.1601506 | 10.2649665 |
| 3 | 9.1103202 | 8.9853390 |
| 4 | 8.4770736 | 8.2011540 |
| 5 | 8.0363348 | 7.6500226 |
| 6 | 7.7044908 | 7.2322234 |
| 7 | 7.4413239 | 6.8991817 |
| 8 | 7.2245630 | 6.6237483 |
| 9 | 7.0406839 | 6.3893089 |
| 10 | 6.8809074 | 6.1850213 |
| 11 | 6.7392358 | 6.0034339 |
| 12 | 6.6113932 | 5.8392140 |
| 13 | 6.4801145 | 5.8956083 |
| 14 | 6.3527836 | 5.9504880 |
| 15 | 6.2282771 | 6.0043227 |
| 16 | 6.1055662 | 6.0575486 |
| 17 | 5.9836815 | 6.1105800 |
| 18 | 5.8616794 | 6.1638247 |
| 19 | 5.7386128 | 6.2176995 |
| 20 | 5.6135003 | 6.2726415 |
| 21 | 5.4852929 | 6.3291196 |
| 22 | 5.3528360 | 6.3876585 |
| 23 | 5.2148234 | 6.4488562 |
| 24 | 5.2402668 | 6.6649693 |
| 25 | 5.2683495 | 6.9053749 |
| 26 | 5.2998810 | 7.1777065 |
| 27 | 5.3359916 | 7.4927797 |
| 28 | 5.3783255 | 7.8666335 |
| 29 | 5.4294047 | 8.3243817 |
| 30 | 5.4933689 | 8.9083534 |
| 31 | 5.5777070 | 9.6977321 |
| 32 | 5.6982373 | 10.8675745 |
| 33 | 5.9005426 | 12.9584634 |
| 34 | 0. | 0. |
| 35 | 0. | 0. |
| 36 | 8.2575763 | 19.4651763 |
| 37 | 8.5397887 | 17.0660496 |
| 38 | 9.0043187 | 16.1055167 |
| 39 | 9.4828053 | 15.4402741 |
| 40 | 9.9710724 | 14.9274772 |
| 41 | 10.4748101 | 14.5123990 |
| 42 | 11.0033634 | 14.1687320 |
| 43 | 11.5697800 | 13.8836467 |
| 44 | 12.1931579 | 13.6534566 |

**********  **********
* PHOTO FRAME NUMBER 1 OF 4 *
********** FRAME 74

| | YEAR | MONTH | DAY | HOUR | MINUTE | SECOND |
|---|---|---|---|---|---|---|
| GMT | 67 | 2 | 17 | 7 | 19 | 45.600 |

| | | | | | |
|---|---|---|---|---|---|
| LONGITUDE OF NADIR POINT | = | 6.1408034 | DEG | LATITUDE OF NADIR POINT | = 4.0511960 DEG |
| LONG OF CAMERA AXIS INTERSECT | = | 6.1144871 | DEG | LATI OF CAMERA AXIS INTERSECT | = 4.0566506 DEG |
| SPACECRAFT RADIUS | = | 1794.7931519 | KM | SPACECRAFT ALTITUDE | = 56.7031555 KM |
| MEAN ALTITUDE RATE | = | -0.1037404 | KM/SEC | TIME FROM PERIAPSIS | = -202.4194355 SEC |
| HORIZONTAL VELOCITY | = | 1.9052233 | KM/SEC | TRUE ANOMALY | = 347.5914497 DEG |
| SCALE FACTOR (HIGH) | = | 0.0107566 | M/KM | TILT DISTANCE (HIGH) | = 8.7512528 MM |
| SCALE FACTOR (LOW) | = | 0.0014107 | M/KM | TILT DISTANCE (LOW) | = 1.1477053 MM |
| IMAGE MOTION COMPENSATION (V/H) | = | 0.0336179 | RAD/SEC | SWING ANGLE | = 81.0157919 DEG |
| EMISSION ANGLE | = | 0.8487485 | DEG | INCIDENCE ANGLE | = 81.9380808 DEG |
| PHASE ANGLE | = | 81.1315577 | DEG | NORTH DEVIATION ANGLE | = 339.2838456 DEG |
| TILT ANGLE | = | 0.8219270 | DEG | RESOLUTION CONSTANT | = 1.2305893 MTR |
| TILT AZIMUTH | = | 281.7381325 | DEG | SUN AZIMUTH AT PRINCIPAL GND PT | = 92.0781145 DEG |
| SUN ANGLE AT NADIR | = | 81.9116497 | DEG | SUN ARC AT NADIR | = 2484.8221436 KM |
| LONGITUDE DISTANCE TO TARGET | = | -0.6921966 | DEG | LATITUDE DISTANCE TO TARGET | = 0.3841960 DEG |
| LONGITUDE ARC LENGTH TO TARGET | = | -20.9980562 | KM | LATITUDE ARC LENGTH TO TARGET | = 11.6547363 KM |
| FORWARD OVERLAP RATIO | = | 0. | PCT | SIDE OVERLAP RATIO | = 0. PCT |
| TIME BETWEEN PHOTOS | = | 0. | SEC | ALPHA | = 0.8364984 DEG. |

| | X | Y | Z | MAGNITUDE (KM) |
|---|---|---|---|---|
| DIRECTION COSINES TO TARGET | -0.93695901 | 0.24069000 | -0.25333010 | 61.71499109 |
| CAMERA AXIS | -0.99037850 | -0.12067746 | -0.06773011 | 56.70918274 |
| C1 | -0.93928871 | 0.29942308 | 0.16757842 | 64.15354919 |
| C2 | -0.86338606 | 0.05221127 | -0.50183512 | 64.27479553 |
| C3 | -0.80925950 | -0.51248335 | -0.28715630 | 64.93099976 |
| C4 | -0.88516213 | -0.26527158 | 0.38225513 | 64.80722046 |

| | X | Y | Z | X DOT | Y DOT | Z DOT |
|---|---|---|---|---|---|---|
| STATE VECTOR (1950.0) | -737.1827698 | -1553.5903015 | -514.0050888 | 1.6547377 | -0.3768086 | -0.8720644 |

LONG 6.9856 DEG  LONG 6.4469 DEG
LATI 4.5390 DEG  LATI 3.1181 DEG

(1) • 46.08200 KM • (2)

LOW RESOLUTION

39.11516 KM  39.18950 KM

(4) • 46.55200 KM • (3)

LONG 5.7782 DEG  LONG 5.2337 DEG
LATI 5.0329 DEG  LATI 3.5675 DEG

LONG 6.3127 DEG  LONG 6.0746 DEG
LATI 4.3406 DEG  LATI 3.7127 DEG

(1) • 20.36431 KM • (2)

HIGH RESOLUTION

5.12185 KM  5.12611 KM

(4) • 20.39126 KM • (3)

LONG 6.1544 DEG  LONG 5.9160 DEG
LATI 4.4038 DEG  LATI 3.7721 DEG

LOW RESOLUTION 74

| INDEX | LONGITUDE | LATITUDE |
|---|---|---|
| 1 | 6.9855636 | 4.5390201 |
| 2 | 6.9320216 | 4.3997243 |
| 3 | 6.8811290 | 4.2669266 |
| 4 | 6.8321968 | 4.1388811 |
| 5 | 6.7846297 | 4.0140628 |
| 6 | 6.7378945 | 3.8910972 |
| 7 | 6.6914943 | 3.7686883 |
| 8 | 6.6449469 | 3.6455639 |
| 9 | 6.5977632 | 3.5204212 |
| 10 | 6.5494263 | 3.3918693 |
| 11 | 6.4993677 | 3.2583647 |
| 12 | 6.4469380 | 3.1181247 |
| 13 | 6.3914112 | 3.1615673 |
| 14 | 6.2196211 | 3.2034748 |
| 15 | 6.1105695 | 3.2442322 |
| 16 | 6.0033507 | 3.2841854 |
| 17 | 5.8971178 | 3.3236545 |
| 18 | 5.7910555 | 3.3629469 |
| 19 | 5.6843539 | 3.4023571 |
| 20 | 5.5761827 | 3.4421924 |
| 21 | 5.4656646 | 3.4827672 |
| 22 | 5.3518453 | 3.5244228 |
| 23 | 5.2336575 | 3.5675367 |
| 24 | 5.2878758 | 3.7087602 |
| 25 | 5.3393922 | 3.8432851 |
| 26 | 5.3889070 | 3.9728990 |
| 27 | 5.4370251 | 4.0991533 |
| 28 | 5.4842876 | 4.2234465 |
| 29 | 5.5311978 | 4.3470917 |
| 30 | 5.5782443 | 4.4713764 |
| 31 | 5.6259211 | 4.5976137 |
| 32 | 5.6747507 | 4.7272020 |
| 33 | 5.7253065 | 4.8616910 |
| 34 | 5.7782435 | 5.0028659 |
| 35 | 5.8954901 | 4.9573691 |
| 36 | 6.0084763 | 4.9136184 |
| 37 | 6.1182545 | 4.8711944 |
| 38 | 6.2257675 | 4.8297282 |
| 39 | 6.3318840 | 4.7888812 |
| 40 | 6.4374275 | 4.7483329 |
| 41 | 6.5432035 | 4.7077752 |
| 42 | 6.6500252 | 4.6668966 |
| 43 | 6.7587385 | 4.6253775 |
| 44 | 6.8702506 | 4.5828767 |

HIGH RESOLUTION 74

| INDEX | LONGITUDE | LATITUDE |
|---|---|---|
| 1 | 6.3126612 | 4.3405928 |
| 2 | 6.2906463 | 4.2826148 |
| 3 | 6.2688509 | 4.2252002 |
| 4 | 6.2472249 | 4.1682159 |
| 5 | 6.2257189 | 4.1115339 |
| 6 | 6.2042853 | 4.0550286 |
| 7 | 6.1828766 | 3.9985745 |
| 8 | 6.1614462 | 3.9420496 |
| 9 | 6.1399468 | 3.8853274 |
| 10 | 6.1183305 | 3.8282834 |
| 11 | 6.0965486 | 3.7707886 |
| 12 | 6.0745505 | 3.7127081 |
| 13 | 6.0601409 | 3.7181065 |
| 14 | 6.0457366 | 3.7235023 |
| 15 | 6.0313354 | 3.7288965 |
| 16 | 6.0169353 | 3.7342880 |
| 17 | 6.0025343 | 3.7396796 |
| 18 | 5.9881304 | 3.7450712 |
| 19 | 5.9737214 | 3.7504628 |
| 20 | 5.9593055 | 3.7558561 |
| 21 | 5.9448802 | 3.7612519 |
| 22 | 5.9304443 | 3.7666512 |
| 23 | 5.9159949 | 3.7720539 |
| 24 | 5.9380533 | 3.8301993 |
| 25 | 5.9598891 | 3.8877624 |
| 26 | 5.9815532 | 3.9448747 |
| 27 | 6.0030946 | 4.0016677 |
| 28 | 6.0245612 | 4.0582653 |
| 29 | 6.0460004 | 4.1147936 |
| 30 | 6.0674592 | 4.1713758 |
| 31 | 6.0889849 | 4.2281372 |
| 32 | 6.1106251 | 4.2852026 |
| 33 | 6.1324291 | 4.3427008 |
| 34 | 6.1544470 | 4.4007668 |
| 35 | 6.1688626 | 4.3952813 |
| 36 | 6.1832657 | 4.3898017 |
| 37 | 6.1976581 | 4.3843265 |
| 38 | 6.2120420 | 4.3788555 |
| 39 | 6.2264195 | 4.3733863 |
| 40 | 6.2407925 | 4.3679204 |
| 41 | 6.2551630 | 4.3624545 |
| 42 | 6.2695330 | 4.3569904 |
| 43 | 6.2839048 | 4.3515254 |
| 44 | 6.2982801 | 4.3460604 |

**********  **********
* PHOTO FRAME NUMBER 2 OF 4 *
**********  **********

FRAME 75

| | YEAR | MONTH | DAY | HOUR | MINUTE | SECOND |
|---|---|---|---|---|---|---|
| GMT | 67 | 2 | 17 | 7 | 10 | 55.799 |

| | | | | | |
|---|---|---|---|---|---|
| LONGITUDE OF NADIR POINT | = | 6.7194847 | DEG | LATITUDE OF NADIR POINT | = 3.8269028 DEG |
| LONG OF CAMERA AXIS INTERSECT | = | 6.7122363 | DEG | LATI OF CAMERA AXIS INTERSECT | = 3.8250852 DEG |
| SPACECRAFT RADIUS | = | 1793.7609253 | KM | SPACECRAFT ALTITUDE | = 55.6709290 KM |
| MEAN ALTITUDE RATE | = | -0.0986333 | KM/SEC | TIME FROM PERIAPSIS | = -192.2351227 SEC |
| HORIZONTAL VELOCITY | = | 1.9063164 | KM/SEC | TRUE ANOMALY | = 348.2112236 DEG |
| SCALE FACTOR (HIGH) | = | 0.0109571 | M/KM | TILT DISTANCE (HIGH) | = 2.4819876 MM |
| SCALE FACTOR (LOW) | = | 0.0014370 | M/KM | TILT DISTANCE (LOW) | = 0.3255066 MM |
| IMAGE MOTION COMPENSATION (V/H) | = | 0.0342470 | RAD/SEC | SWING ANGLE | = 55.1346369 DEG |
| EMISSION ANGLE | = | 0.2409674 | DEG | INCIDENCE ANGLE | = 81.3322926 DEG |
| PHASE ANGLE | = | 81.1015587 | DEG | NORTH DEVIATION ANGLE | = 339.2375259 DEG |
| TILT ANGLE | = | 0.2331256 | DEG | RESOLUTION CONSTANT | = 1.2080697 MTR |
| TILT AZIMUTH | = | 255.8974152 | DEG | SUN AZIMUTH AT PRINCIPAL GND PT | = 92.0884628 DEG |
| SUN ANGLE AT NADIR | = | 81.3251324 | DEG | SUN ARC AT NADIR | = 2467.0298767 KM |
| LONGITUDE DISTANCE TO TARGET | = | -0.1135153 | DEG | LATITUDE DISTANCE TO TARGET | = 0.1599028 DEG |
| LONGITUDE ARC LENGTH TO TARGET | = | -3.4435300 | KM | LATITUDE ARC LENGTH TO TARGET | = 4.8507156 KM |
| FORWARD OVERLAP RATIO | = | 50.2481976 | PCT | SIDE OVERLAP RATIO | = 0. PCT |
| TIME BETWEEN PHOTOS | = | 10.1999044 | SEC | ALPHA | = 0.2307274 DEG. |

| | X | Y | Z | MAGNITUDE (KM) |
|---|---|---|---|---|
| DIRECTION COSINES TO TARGET | -0.98675640 | -0.05446462 | -0.15279204 | 55.99749804 |
| CAMERA AXIS | -0.99038155 | -0.12065269 | -0.06772972 | 55.67141724 |
| C1 | -0.93928116 | 0.29944656 | 0.16757883 | 63.21575928 |
| C2 | -0.86338496 | 0.05223291 | -0.50183476 | 63.34007263 |
| C3 | -0.80927244 | -0.51246308 | -0.28715801 | 63.49154663 |
| C4 | -0.88516862 | -0.26524947 | 0.38225547 | 63.36662292 |

| | X | Y | Z | X DOT | Y DOT | Z DOT |
|---|---|---|---|---|---|---|
| STATE VECTOR (1950.0) | -720.2704849 | -1557.3654633 | -522.8781357 | 1.6610500 | -0.3633378 | -0.8675655 |

LONG 7.5707 DEG  LONG 7.0391 DEG
LATI 4.2998 DEG  LATI 2.9000 DEG

(1) * 45.41013 KM * (2)

LOW RESOLUTION

38.38917 KM  38.46476 KM

(4) * 45.51860 KM * (3)

LONG 6.3844 DEG  LONG 5.8509 DEG
LATI 4.7505 DEG  LATI 3.3474 DEG

LONG 6.9070 DEG  LONG 6.6728 DEG
LATI 4.1038 DEG  LATI 3.4873 DEG

(1) * 20.00155 KM * (2)

HIGH RESOLUTION

5.02747 KM  5.03180 KM

(4) * 20.00778 KM * (3)

LONG 6.7517 DEG  LONG 6.5173 DEG
LATI 4.1627 DEG  LATI 3.5460 DEG

LOW RESOLUTION 75

| INDEX | LONGITUDE | LATITUDE |
|---|---|---|
| 1 | 7.5706684 | 4.2997944 |
| 2 | 7.5178334 | 4.1625827 |
| 3 | 7.4676117 | 4.0317650 |
| 4 | 7.4193236 | 3.9056216 |
| 5 | 7.3723822 | 3.7826560 |
| 6 | 7.3262618 | 3.6615115 |
| 7 | 7.2804719 | 3.5409117 |
| 8 | 7.2345368 | 3.4196067 |
| 9 | 7.1879748 | 3.2963116 |
| 10 | 7.1402758 | 3.1696568 |
| 11 | 7.0908791 | 3.0381227 |
| 12 | 7.0391445 | 2.8999531 |
| 13 | 6.9251943 | 2.9434930 |
| 14 | 6.8150916 | 2.9854364 |
| 15 | 6.7078398 | 3.0261750 |
| 16 | 6.6025383 | 3.0660591 |
| 17 | 6.4983500 | 3.1054095 |
| 18 | 6.3944731 | 3.1445311 |
| 19 | 6.2901157 | 3.1837210 |
| 20 | 6.1844708 | 3.2232823 |
| 21 | 6.0766903 | 3.2635258 |
| 22 | 5.9658566 | 3.3047861 |
| 23 | 5.8509478 | 3.3474278 |
| 24 | 5.9040269 | 3.4854788 |
| 25 | 5.9544692 | 3.6169872 |
| 26 | 6.0029594 | 3.7436966 |
| 27 | 6.0500881 | 3.8671224 |
| 28 | 6.0963842 | 3.9886289 |
| 29 | 6.1423401 | 4.1095027 |
| 30 | 6.1884337 | 4.2309964 |
| 31 | 6.2351487 | 4.3543923 |
| 32 | 6.2829963 | 4.4810565 |
| 33 | 6.3325379 | 4.6125009 |
| 34 | 6.3844154 | 4.7504656 |
| 35 | 6.4987895 | 4.7065765 |
| 36 | 6.6091781 | 4.6643062 |
| 37 | 6.7165915 | 4.6232568 |
| 38 | 6.8219404 | 4.5830773 |
| 39 | 6.9260670 | 4.5434400 |
| 40 | 7.0297747 | 4.5040401 |
| 41 | 7.1338545 | 4.4645752 |
| 42 | 7.2391080 | 4.4247459 |
| 43 | 7.3463752 | 4.3842343 |
| 44 | 7.4565607 | 4.3427076 |

HIGH RESOLUTION 75

| INDEX | LONGITUDE | LATITUDE |
|---|---|---|
| 1 | 6.9070212 | 4.1038252 |
| 2 | 6.8853627 | 4.0468981 |
| 3 | 6.8639206 | 3.9905234 |
| 4 | 6.8426450 | 3.9345714 |
| 5 | 6.8214878 | 3.8789139 |
| 6 | 6.8004018 | 3.8234305 |
| 7 | 6.7793409 | 3.7679967 |
| 8 | 6.7582589 | 3.7124920 |
| 9 | 6.7371091 | 3.6567944 |
| 10 | 6.7158448 | 3.6007800 |
| 11 | 6.6944178 | 3.5443226 |
| 12 | 6.6727788 | 3.4872896 |
| 13 | 6.6586395 | 3.4926334 |
| 14 | 6.6445076 | 3.4979729 |
| 15 | 6.6303818 | 3.5033090 |
| 16 | 6.6162596 | 3.5086434 |
| 17 | 6.6021391 | 3.5139752 |
| 18 | 6.5880184 | 3.5193061 |
| 19 | 6.5738955 | 3.5246371 |
| 20 | 6.5597684 | 3.5299689 |
| 21 | 6.5456349 | 3.5353016 |
| 22 | 6.5314932 | 3.5406360 |
| 23 | 6.5173414 | 3.5459737 |
| 24 | 6.5390183 | 3.6030127 |
| 25 | 6.5604771 | 3.6594787 |
| 26 | 6.5817678 | 3.7155042 |
| 27 | 6.6029382 | 3.7712137 |
| 28 | 6.6240356 | 3.8267329 |
| 29 | 6.6451065 | 3.8821830 |
| 30 | 6.6661971 | 3.9376859 |
| 31 | 6.6873537 | 3.9933631 |
| 32 | 6.7086232 | 4.0493382 |
| 33 | 6.7300538 | 4.1057385 |
| 34 | 6.7516949 | 4.1626920 |
| 35 | 6.7658341 | 4.1573312 |
| 36 | 6.7799637 | 4.1519746 |
| 37 | 6.7940854 | 4.1466206 |
| 38 | 6.8082015 | 4.1412700 |
| 39 | 6.8223138 | 4.1359211 |
| 40 | 6.8364245 | 4.1305739 |
| 41 | 6.8505354 | 4.1252258 |
| 42 | 6.8646483 | 4.1198778 |
| 43 | 6.8787658 | 4.1145289 |
| 44 | 6.8928893 | 4.1091783 |

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* PHOTO FRAME NUMBER 3 OF 4 *
**********

FRAME 76

| | YEAR | MONTH | DAY | HOUR | MINUTE | SECOND |
|---|---|---|---|---|---|---|
| GMT | 67 | 2 | 17 | 7 | 11 | 5.699 |

| | | | | | |
|---|---|---|---|---|---|
| LONGITUDE OF NADIR POINT | = | 7.2813607 DEG | LATITUDE OF NADIR POINT | = | 3.6086365 DEG |
| LONG OF CAMERA AXIS INTERSECT | = | 7.2919655 DEG | LATI OF CAMERA AXIS INTERSECT | = | 3.5999784 DEG |
| SPACECRAFT RADIUS | = | 1792.8091431 KM | SPACECRAFT ALTITUDE | = | 54.7191467 KM |
| MEAN ALTITUDE RATE | = | -0.0936608 KM/SEC | TIME FROM PERIAPSIS | = | -182.3520641 SEC |
| HORIZONTAL VELOCITY | = | 1.9073253 KM/SEC | TRUE ANOMALY | = | 348.8133302 DEG |
| SCALE FACTOR (HIGH) | = | 0.0111475 M/KM | TILT DISTANCE (HIGH) | = | 4.6263970 MM |
| SCALE FACTOR (LOW) | = | 0.0014620 M/KM | TILT DISTANCE (LOW) | = | 0.6067406 MM |
| IMAGE MOTION COMPENSATION (V/H) | = | 0.0348414 RAD/SEC | SWING ANGLE | = | 288.4838791 DEG |
| EMISSION ANGLE | = | 0.4482796 DEG | INCIDENCE ANGLE | = | 80.7445641 DEG |
| PHASE ANGLE | = | 81.1015615 DEG | NORTH DEVIATION ANGLE | = | 339.2001266 DEG |
| TILT ANGLE | = | 0.4345376 DEG | RESOLUTION CONSTANT | = | 1.1874409 MTR |
| TILT AZIMUTH | = | 129.2839966 DEG | SUN AZIMUTH AT PRINCIPAL GND PT | = | 92.0939512 DEG |
| SUN ANGLE AT NADIR | = | 80.7554569 DEG | SUN ARC AT NADIR | = | 2449.7485657 KM |
| LONGITUDE DISTANCE TO TARGET | = | 0.4483607 DEG | LATITUDE DISTANCE TO TARGET | = | -0.0583635 DEG |
| LONGITUDE ARC LENGTH TO TARGET | = | 13.6011976 KM | LATITUDE ARC LENGTH TO TARGET | = | -1.7704805 KM |
| FORWARD OVERLAP RATIO | = | 50.8281217 PCT | SIDE OVERLAP RATIO | = | 0. PCT |
| TIME BETWEEN PHOTOS | = | 9.8999262 SEC | ALPHA | = | -0.3571015 DEG. |

| | X | Y | Z | MAGNITUDE (KM) |
|---|---|---|---|---|
| DIRECTION COSINES TO TARGET | -0.93192109 | -0.36144237 | -0.02970677 | 56.45764971 |
| CAMERA AXIS | -0.99038451 | -0.12062861 | -0.06772932 | 54.72077942 |
| C1 | -0.93927381 | 0.29946937 | 0.16757923 | 62.36358643 |
| C2 | -0.86338390 | 0.05225393 | -0.50183439 | 62.49089050 |
| C3 | -0.80928501 | -0.51244339 | -0.28715771 | 62.17001343 |
| C4 | -0.88517490 | -0.26522798 | 0.38225581 | 62.04405212 |

| | X | Y | Z | X DOT | Y DOT | Z DOT |
|---|---|---|---|---|---|---|
| STATE VECTOR (1950.0) | -703.7979660 | -1560.8972168 | -531.4442291 | 1.6670447 | -0.3502134 | -0.8631194 |

LONG 8.1390 DEG LONG 7.6139 DEG
LATI 4.0677 DEG LATI 2.6870 DEG

(1) * 44.79967 KM * (2)

LOW RESOLUTION

37.73059 KM 37.80741 KM

(4) * 44.56987 KM * (3)

LONG 6.9718 DEG LONG 6.4486 DEG
LATI 4.5062 DEG LATI 3.1328 DEG

LONG 7.4837 DEG LONG 7.2530 DEG
LATI 3.8740 DEG LATI 3.2678 DEG

(1) * 19.66948 KM * (2)

HIGH RESOLUTION

4.94161 KM 4.94602 KM

(4) * 19.65630 KM * (3)

LONG 7.3309 DEG LONG 7.1004 DEG
LATI 3.9316 DEG LATI 3.3259 DEG

LOW RESOLUTION 76

| INDEX | LONGITUDE | LATITUDE |
|---|---|---|
| 1 | 8.1389720 | 4.0677097 |
| 2 | 8.0867810 | 3.9323908 |
| 3 | 8.0371704 | 3.8033720 |
| 4 | 7.9894696 | 3.6789584 |
| 5 | 7.9430987 | 3.5576747 |
| 6 | 7.8975382 | 3.4381848 |
| 7 | 7.8523050 | 3.3192294 |
| 8 | 7.8069285 | 3.1995764 |
| 9 | 7.7609333 | 3.0779581 |
| 10 | 7.7138162 | 2.9530263 |
| 11 | 7.6650233 | 2.8232808 |
| 12 | 7.6139226 | 2.6869904 |
| 13 | 7.5013844 | 2.7306507 |
| 14 | 7.3928019 | 2.7726538 |
| 15 | 7.2871790 | 2.8133950 |
| 16 | 7.1836179 | 2.8532321 |
| 17 | 7.0812901 | 2.8924860 |
| 18 | 6.9794053 | 2.9314651 |
| 19 | 6.8771873 | 2.9704646 |
| 20 | 6.7738498 | 3.0097817 |
| 21 | 6.6685708 | 3.0497264 |
| 22 | 6.5604655 | 3.0906255 |
| 23 | 6.4485534 | 3.1328370 |
| 24 | 6.5005835 | 3.2679765 |
| 25 | 6.5500368 | 3.3967162 |
| 26 | 6.5975829 | 3.5207610 |
| 27 | 6.6437998 | 3.6415913 |
| 28 | 6.6892053 | 3.7605433 |
| 29 | 6.7342813 | 3.8788712 |
| 30 | 6.7794961 | 3.9978036 |
| 31 | 6.8253238 | 4.1185929 |
| 32 | 6.8722650 | 4.2425745 |
| 33 | 6.9208711 | 4.3712254 |
| 34 | 6.9717703 | 4.5062445 |
| 35 | 7.0835249 | 4.4638333 |
| 36 | 7.1915453 | 4.4229239 |
| 37 | 7.2968050 | 4.3831415 |
| 38 | 7.4001849 | 4.3441462 |
| 39 | 7.5025042 | 4.3056257 |
| 40 | 7.6045489 | 4.2672844 |
| 41 | 7.7070965 | 4.2288296 |
| 42 | 7.8109400 | 4.1899658 |
| 43 | 7.9169140 | 4.1503848 |
| 44 | 8.0259221 | 4.1097555 |

HIGH RESOLUTION 76

| INDEX | LONGITUDE | LATITUDE |
|---|---|---|
| 1 | 7.4836512 | 3.8739543 |
| 2 | 7.4623206 | 3.8179903 |
| 3 | 7.4412028 | 3.7625676 |
| 4 | 7.4202493 | 3.7075581 |
| 5 | 7.3994125 | 3.6528406 |
| 6 | 7.3786463 | 3.5982904 |
| 7 | 7.3579049 | 3.5437907 |
| 8 | 7.3371426 | 3.4892200 |
| 9 | 7.3163143 | 3.4344590 |
| 10 | 7.2953735 | 3.3793871 |
| 11 | 7.2742729 | 3.3238782 |
| 12 | 7.2529639 | 3.2678049 |
| 13 | 7.2390699 | 3.2730983 |
| 14 | 7.2251862 | 3.2783874 |
| 15 | 7.2113105 | 3.2836723 |
| 16 | 7.1974410 | 3.2889538 |
| 17 | 7.1835761 | 3.2942326 |
| 18 | 7.1697131 | 3.2995089 |
| 19 | 7.1558506 | 3.3047853 |
| 20 | 7.1419864 | 3.3100599 |
| 21 | 7.1281188 | 3.3153353 |
| 22 | 7.1142457 | 3.3206125 |
| 23 | 7.1003647 | 3.3258905 |
| 24 | 7.1216908 | 3.3819160 |
| 25 | 7.1428025 | 3.4373772 |
| 26 | 7.1637495 | 3.4924063 |
| 27 | 7.1845787 | 3.5471247 |
| 28 | 7.2053365 | 3.6016560 |
| 29 | 7.2260685 | 3.6561182 |
| 30 | 7.2468202 | 3.7106325 |
| 31 | 7.2676370 | 3.7653167 |
| 32 | 7.2885653 | 3.8202929 |
| 33 | 7.3096523 | 3.8756866 |
| 34 | 7.3309466 | 3.9316224 |
| 35 | 7.3448346 | 3.9263752 |
| 36 | 7.3587155 | 3.9211313 |
| 37 | 7.3725913 | 3.9158891 |
| 38 | 7.3864642 | 3.9106503 |
| 39 | 7.4003359 | 3.9054107 |
| 40 | 7.4142082 | 3.9001729 |
| 41 | 7.4280835 | 3.8949332 |
| 42 | 7.4419634 | 3.8896919 |
| 43 | 7.4558502 | 3.8844498 |
| 44 | 7.4697452 | 3.8792042 |

**********
* PHOTO FRAME NUMBER 4 OF 4 *
**********

## FRAME 77

| | YEAR | MONTH | DAY | HOUR | MINUTE | SECOND |
|---|---|---|---|---|---|---|
| GMT | 67 | 2 | 17 | 7 | 11 | 15.599 |

| | | | | | |
|---|---|---|---|---|---|
| LONGITUDE OF NADIR POINT | = | 7.8436555 | DEG | LATITUDE OF NADIR POINT | = 3.3897545 DEG |
| LONG OF CAMERA AXIS INTERSECT | = | 7.8715301 | DEG | LATI OF CAMERA AXIS INTERSECT | = 3.3744481 DEG |
| SPACECRAFT RADIUS | = | 1791.9365094 | KM | SPACECRAFT ALTITUDE | = 53.8165131 KM |
| MEAN ALTITUDE RATE | = | -0.0886715 | KM/SEC | TIME FROM PERIAPSIS | = -172.4665775 SEC |
| HORIZONTAL VELOCITY | = | 1.9082828 | KM/SEC | TRUE ANOMALY | = 349.4162216 DEG |
| SCALE FACTOR (HIGH) | = | 0.0113329 | M/KM | TILT DISTANCE (HIGH) | = 10.9207305 MM |
| SCALE FACTOR (LOW) | = | 0.0014863 | M/KM | TILT DISTANCE (LOW) | = 1.4322269 MM |
| IMAGE MOTION COMPENSATION (V/H) | = | 0.0354174 | RAD/SEC | SWING ANGLE | = 277.9760475 DEG |
| EMISSION ANGLE | = | 1.0574917 | DEG | INCIDENCE ANGLE | = 80.1568174 DEG |
| PHASE ANGLE | = | 81.1015625 | DEG | NORTH DEVIATION ANGLE | = 339.1673050 DEG |
| TILT ANGLE | = | 1.0256474 | DEG | RESOLUTION CONSTANT | = 1.1680117 MTR |
| TILT AZIMUTH | = | 118.8113022 | DEG | SUN AZIMUTH AT PRINCIPAL GND PT | = 92.0949383 DEG |
| SUN ANGLE AT NADIR | = | 80.1851835 | DEG | SUN ARC AT NADIR | = 2432.4490967 KM |
| LONGITUDE DISTANCE TO TARGET | = | 1.0106555 | DEG | LATITUDE DISTANCE TO TARGET | = -0.2772455 DEG |
| LONGITUDE ARC LENGTH TO TARGET | = | 30.6586311 | KM | LATITUDE ARC LENGTH TO TARGET | = -8.4103501 KM |
| FORWARD OVERLAP RATIO | = | 49.9513898 | PCT | SIDE OVERLAP RATIO | = 0. PCT |
| TIME BETWEEN PHOTOS | = | 9.8999262 | SEC | ALPHA | = -0.9450857 DEG. |

| | X | Y | Z | MAGNITUDE (KM) |
|---|---|---|---|---|
| DIRECTION COSINES TO TARGET | -0.79432676 | -0.60178050 | 0.08309766 | 62.72555256 |
| CAMERA AXIS | -0.99038750 | -0.12060432 | -0.06772893 | 53.82542419 |
| C1 | -0.93926641 | 0.29949239 | 0.16757964 | 61.56878662 |
| C2 | -0.86338283 | 0.05227514 | -0.50183403 | 61.69911194 |
| C3 | -0.80929769 | -0.51242352 | -0.28715742 | 60.92137146 |
| C4 | -0.88518126 | -0.26520631 | 0.38225615 | 60.79437256 |

| | X | Y | Z | X DOT | Y DOT | Z DOT |
|---|---|---|---|---|---|---|
| STATE VECTOR (1950.0) | -687.2634125 | -1564.2994995 | -539.9676361 | 1.6729105 | -0.3370368 | -0.8585935 |

LONG 8.7079 DEG
LATI 3.8357 DEG

LONG 8.1890 DEG
LATI 2.4728 DEG

* 44.23039 KM *
(1) (2)

LOW RESOLUTION

37.11667 KM 37.19475 KM

(4) (3)
* 43.67344 KM *

LONG 7.5584 DEG
LATI 4.2627 DEG

LONG 7.0449 DEG
LATI 2.9172 DEG

LONG 8.0603 DEG
LATI 3.6439 DEG

LONG 7.8330 DEG
LATI 3.0476 DEG

* 19.35698 KM *
(1) (2)

HIGH RESOLUTION

4.86134 KM 4.86582 KM

(4) (3)
* 19.32503 KM *

LONG 7.9100 DEG
LATI 3.7005 DEG

LONG 7.6830 DEG
LATI 3.1051 DEG

LOW RESOLUTION 77

| INDEX | LONGITUDE | LATITUDE |
|---|---|---|
| 1 | 8.7079463 | 3.8356574 |
| 2 | 8.6563573 | 3.7021016 |
| 3 | 8.6073180 | 3.5747596 |
| 4 | 8.5601660 | 3.4519588 |
| 5 | 8.5143287 | 3.3322435 |
| 6 | 8.4692924 | 3.2142946 |
| 7 | 8.4245795 | 3.0968735 |
| 8 | 8.3797262 | 2.9787590 |
| 9 | 8.3342612 | 2.8587048 |
| 10 | 8.2876884 | 2.7353789 |
| 11 | 8.2394606 | 2.6072991 |
| 12 | 8.1889530 | 2.4727598 |
| 13 | 8.0777102 | 2.5165669 |
| 14 | 7.9705329 | 2.5586528 |
| 15 | 7.8664224 | 2.5994239 |
| 16 | 7.7644845 | 2.6392371 |
| 17 | 7.6638967 | 2.6784177 |
| 18 | 7.5638790 | 2.7172754 |
| 19 | 7.4636698 | 2.7561051 |
| 20 | 7.3625013 | 2.7952028 |
| 21 | 7.2595754 | 2.8348717 |
| 22 | 7.1540373 | 2.8754353 |
| 23 | 7.0449453 | 2.9172454 |
| 24 | 7.0959817 | 3.0496359 |
| 25 | 7.1444981 | 3.1757613 |
| 26 | 7.1911494 | 3.2972891 |
| 27 | 7.2365018 | 3.4156682 |
| 28 | 7.2810623 | 3.5322067 |
| 29 | 7.3253035 | 3.6481312 |
| 30 | 7.3696842 | 3.7646440 |
| 31 | 7.4146698 | 3.8829719 |
| 32 | 7.4607509 | 4.0044194 |
| 33 | 7.5084683 | 4.1304330 |
| 34 | 7.5584390 | 4.2626740 |
| 35 | 7.6677341 | 4.2216613 |
| 36 | 7.7735332 | 4.1820428 |
| 37 | 7.8767748 | 4.1434599 |
| 38 | 7.9783127 | 4.1055899 |
| 39 | 8.0789450 | 4.0681306 |
| 40 | 8.1794419 | 4.0307942 |
| 41 | 8.2805693 | 3.9932982 |
| 42 | 8.3831123 | 3.9553531 |
| 43 | 8.4879017 | 3.9166558 |
| 44 | 8.5958424 | 3.8768785 |

HIGH RESOLUTION 77

| INDEX | LONGITUDE | LATITUDE |
|---|---|---|
| 1 | 8.0603032 | 3.6439443 |
| 2 | 8.0392820 | 3.5888844 |
| 3 | 8.0184708 | 3.5343564 |
| 4 | 7.9978215 | 3.4802358 |
| 5 | 7.9772873 | 3.4264002 |
| 6 | 7.9568230 | 3.3727294 |
| 7 | 7.9363832 | 3.3191065 |
| 8 | 7.9159234 | 3.2654152 |
| 9 | 7.8953986 | 3.2115344 |
| 10 | 7.8747632 | 3.1573488 |
| 11 | 7.8539707 | 3.1027321 |
| 12 | 7.8329733 | 3.0475612 |
| 13 | 7.8193086 | 3.0528102 |
| 14 | 7.8056566 | 3.0580515 |
| 15 | 7.7920151 | 3.0632894 |
| 16 | 7.7783819 | 3.0685222 |
| 17 | 7.7647557 | 3.0737516 |
| 18 | 7.7511343 | 3.0789784 |
| 19 | 7.7375155 | 3.0842043 |
| 20 | 7.7238976 | 3.0894268 |
| 21 | 7.7102787 | 3.0946502 |
| 22 | 7.6966567 | 3.0998728 |
| 23 | 7.6830302 | 3.1050962 |
| 24 | 7.7040240 | 3.1601654 |
| 25 | 7.7248080 | 3.2146823 |
| 26 | 7.7454297 | 3.2687714 |
| 27 | 7.7659363 | 3.3225557 |
| 28 | 7.7863726 | 3.3761565 |
| 29 | 7.8067839 | 3.4296889 |
| 30 | 7.8272149 | 3.4832709 |
| 31 | 7.8477106 | 3.5370211 |
| 32 | 7.8683162 | 3.5910564 |
| 33 | 7.8890782 | 3.6455007 |
| 34 | 7.9100442 | 3.7004769 |
| 35 | 7.9236974 | 3.6953389 |
| 36 | 7.9373460 | 3.6902009 |
| 37 | 7.9509922 | 3.6850654 |
| 38 | 7.9646379 | 3.6799308 |
| 39 | 7.9782848 | 3.6747954 |
| 40 | 7.9919351 | 3.6696599 |
| 41 | 8.0055906 | 3.6645228 |
| 42 | 8.0192533 | 3.6593831 |
| 43 | 8.0329248 | 3.6542408 |
| 44 | 8.0466074 | 3.6490951 |

**********  **********
* PHOTO FRAME NUMBER 1 OF 1 *
**********  **********

## FRAME 78

| | YEAR | MONTH | DAY | HOUR | MINUTE | SECOND |
|---|---|---|---|---|---|---|
| GMT | 67 | 2 | 17 | 10 | 45 | 47.500 |

| | | | | | |
|---|---|---|---|---|---|
| LONGITUDE OF NADIR POINT | = | 26.4728708 | DEG | LATITUDE OF NADIR POINT | = -4.6985946 DEG |
| LONG OF CAMERA AXIS INTERSECT | = | 26.4762783 | DEG | LATI OF CAMERA AXIS INTERSECT | = -9.9132134 DEG |
| SPACECRAFT RADIUS | = | 1792.9169312 | KM | SPACECRAFT ALTITUDE | = 54.8269348 KM |
| MEAN ALTITUDE RATE | = | 0.0957571 | KM/SEC | TIME FROM PERIAPSIS | = 186.4998817 SEC |
| HORIZONTAL VELOCITY | = | 1.9070016 | KM/SEC | TRUE ANOMALY | = 11.4418272 DEG |
| SCALE FACTOR (HIGH) | = | 0.0035944 | M/KM | TILT DISTANCE (HIGH) | = 1553.7004547 MM |
| SCALE FACTOR (LOW) | = | 0.0004714 | M/KM | TILT DISTANCE (LOW) | = 203.7639942 MM |
| IMAGE MOTION COMPENSATION (V/H) | = | 0.0106712 | RAD/SEC | SWING ANGLE | = 349.1967201 DEG |
| EMISSION ANGLE | = | 73.7790966 | DEG | INCIDENCE ANGLE | = 59.8463297 DEG |
| PHASE ANGLE | = | 78.5297289 | DEG | NORTH DEVIATION ANGLE | = 349.3305588 DEG |
| TILT ANGLE | = | 68.5644779 | DEG | RESOLUTION CONSTANT | = 3.6826624 MTR |
| TILT AZIMUTH | = | 179.9630470 | DEG | SUN AZIMUTH AT PRINCIPAL GND PT | = 85.9194193 DEG |
| SUN ANGLE AT NADIR | = | 59.6166530 | DEG | SUN ARC AT NADIR | = 1808.4946289 KM |
| LONGITUDE DISTANCE TO TARGET | = | 0.0558708 | DEG | LATITUDE DISTANCE TO TARGET | = 6.6344053 DEG |
| LONGITUDE ARC LENGTH TO TARGET | = | 1.6948618 | KM | LATITUDE ARC LENGTH TO TARGET | = 201.2572937 KM |
| FORWARD OVERLAP RATIO | = | 0. | PCT | SIDE OVERLAP RATIO | = 0. PCT |
| TIME BETWEEN PHOTOS | = | 0. | SEC | ALPHA | = -58.5018005 DEG. |

| | X | Y | Z | MAGNITUDE (KM) |
|---|---|---|---|---|
| DIRECTION COSINES TO TARGET | -0.34643451 | -0.18129765 | -0.92038812 | 211.52873039 |
| CAMERA AXIS | -0.39455575 | -0.19581444 | -0.89776526 | 169.70794678 |
| C1 | -0.55482488 | -0.18999563 | -0.80998211 | 112.05813599 |
| C2 | -0.30067548 | -0.12473714 | -0.94553419 | 405.82147598 |
| C3 | -0.26186401 | -0.20658093 | -0.94273621 | 378.68831253 |
| C4 | -0.52932426 | -0.27472878 | -0.80270787 | 108.34164429 |

| | X | Y | Z | X DOT | Y DOT | Z DOT |
|---|---|---|---|---|---|---|
| STATE VECTOR (1950.0) | -57.8872213 | -1596.3020172 | -814.2604523 | 1.7888273 | 0.1584746 | -0.6486968 |

LONG 27.6203 DEG
LATI -6.9203 DEG

LONG 30.1395 DEG
LATI -15.1235 DEG

(1) • 94.48079 KM • (2)

LOW RESOLUTION

54.64893 KM 234.47887 KM

(4) • 328.01846 KM • (3)

LONG 25.8678 DEG
LATI -6.4542 DEG

LONG 21.4015 DEG
LATI -17.4654 DEG

LONG 26.7639 DEG
LATI -7.8580 DEG

LONG 26.7872 DEG
LATI -17.7743 DEG

(1) • 112.05814 KM • (2)

HIGH RESOLUTION

10.46495 KM 104.90181 KM

(4) • 266.84487 KM • (3)

LONG 26.4370 DEG
LATI -7.7317 DEG

LONG 25.5834 DEG
LATI -16.8518 DEG

LOW RESOLUTION 78

| INDEX | LONGITUDE | LATITUDE |
|---|---|---|
| 1 | 27.6200185 | -6.9202519 |
| 2 | 27.7251577 | -7.3015165 |
| 3 | 27.8585079 | -7.7796374 |
| 4 | 28.0368986 | -8.4099400 |
| 5 | 28.2955961 | -9.3056041 |
| 6 | 28.7297328 | -10.7618201 |
| 7 | 29.8658276 | -14.3176702 |
| 8 | 0. | 0. |
| 9 | 0. | 0. |
| 10 | 0. | 0. |
| 11 | 0. | 0. |
| 12 | 0. | 0. |
| 13 | 0. | 0. |
| 14 | 0. | 0. |
| 15 | 0. | 0. |
| 16 | 0. | 0. |
| 17 | 0. | 0. |
| 18 | 0. | 0. |
| 19 | 0. | 0. |
| 20 | 0. | 0. |
| 21 | 0. | 0. |
| 22 | 0. | 0. |
| 23 | 0. | 0. |
| 24 | 0. | 0. |
| 25 | 0. | 0. |
| 26 | 21.4015098 | -17.4653628 |
| 27 | 24.0266767 | -11.0695653 |
| 28 | 24.6730814 | -9.4572599 |
| 29 | 25.0476274 | -8.5185111 |
| 30 | 25.3032539 | -7.8762615 |
| 31 | 25.4933219 | -7.3980228 |
| 32 | 25.6426868 | -7.0218348 |
| 33 | 25.7648361 | -6.7139802 |
| 34 | 25.8678463 | -6.4542281 |
| 35 | 26.0115833 | -6.4903564 |
| 36 | 26.1545768 | -6.5266691 |
| 37 | 26.2979560 | -6.5634531 |
| 38 | 26.4428673 | -6.6010081 |
| 39 | 26.5905070 | -6.6396635 |
| 40 | 26.7421649 | -6.6797823 |
| 41 | 26.8992741 | -6.7217863 |
| 42 | 27.0634785 | -6.7661671 |
| 43 | 27.2366986 | -6.8135183 |
| 44 | 27.4212577 | -6.8645722 |

CORNER 2, 3 OF LOW RESOLUTION FRAME 1 IS OFF THE MOON

HIGH RESOLUTION 78

| INDEX | LONGITUDE | LATITUDE |
|---|---|---|
| 1 | 26.7609456 | -7.8580428 |
| 2 | 26.7570326 | -8.1269482 |
| 3 | 26.7528315 | -8.4369364 |
| 4 | 26.7483332 | -8.8003024 |
| 5 | 26.7435517 | -9.2353274 |
| 6 | 26.7385733 | -9.7708638 |
| 7 | 26.7336695 | -10.4565243 |
| 8 | 26.7296557 | -11.3896416 |
| 9 | 26.7295089 | -12.8128165 |
| 10 | 26.7549319 | -15.9284414 |
| 11 | 0. | 0. |
| 12 | 0. | 0. |
| 13 | 0. | 0. |
| 14 | 0. | 0. |
| 15 | 0. | 0. |
| 16 | 0. | 0. |
| 17 | 0. | 0. |
| 18 | 0. | 0. |
| 19 | 0. | 0. |
| 20 | 0. | 0. |
| 21 | 0. | 0. |
| 22 | 0. | 0. |
| 23 | 0. | 0. |
| 24 | 0. | 0. |
| 25 | 25.8402848 | -13.8870021 |
| 26 | 26.0160844 | -11.9767749 |
| 27 | 26.1231642 | -10.8552271 |
| 28 | 26.2000196 | -10.0684781 |
| 29 | 26.2594295 | -9.4702791 |
| 30 | 26.3074367 | -8.9930171 |
| 31 | 26.3474262 | -8.5995691 |
| 32 | 26.3814864 | -8.2672975 |
| 33 | 26.4110103 | -7.9813978 |
| 34 | 26.4369605 | -7.7316622 |
| 35 | 26.4655445 | -7.7426724 |
| 36 | 26.4942834 | -7.7537706 |
| 37 | 26.5231826 | -7.7649576 |
| 38 | 26.5522499 | -7.7762377 |
| 39 | 26.5814898 | -7.7876125 |
| 40 | 26.6109107 | -7.7990855 |
| 41 | 26.6405182 | -7.8106619 |
| 42 | 26.6703179 | -7.8223406 |
| 43 | 26.7003186 | -7.8341287 |
| 44 | 26.7305255 | -7.8460286 |

CORNER 2,3 OF HIGH RESOLUTION FRAME 1 IS OFF THE MOON

**********
* PHOTO FRAME NUMBER 1 OF 1 *
**********

## FRAME 79

| | YEAR | MONTH | DAY | HOUR | MINUTE | SECOND |
|---|---|---|---|---|---|---|
| GMT | 67 | 2 | 17 | 14 | 12 | 15.499 |

| | | | | | |
|---|---|---|---|---|---|
| LONGITUDE OF NADIR POINT | = | 17.5182261 | DEG | LATITUDE OF NADIR POINT | = -1.9600858 DEG |
| LONG OF CAMERA AXIS INTERSECT | = | 17.5888660 | DEG | LATI OF CAMERA AXIS INTERSECT | = -1.7835809 DEG |
| SPACECRAFT RADIUS | = | 1784.7182312 | KM | SPACECRAFT ALTITUDE | = 46.6282349 KM |
| MEAN ALTITUDE RATE | = | 0.0319608 | KM/SEC | TIME FROM PERIAPSIS | = 61.6537762 SEC |
| HORIZONTAL VELOCITY | = | 1.9157575 | KM/SEC | TRUE ANOMALY | = 3.7946666 DEG |
| SCALE FACTOR (HIGH) | = | 0.0129807 | M/KM | TILT DISTANCE (HIGH) | = 75.4271269 MM |
| SCALE FACTOR (LOW) | = | 0.0017024 | M/KM | TILT DISTANCE (LOW) | = 9.8920822 MM |
| IMAGE MOTION COMPENSATION (V/H) | = | 0.0407595 | RAD/SEC | SWING ANGLE | = 179.2221851 DEG |
| EMISSION ANGLE | = | 7.2390098 | DEG | INCIDENCE ANGLE | = 66.7428932 DEG |
| PHASE ANGLE | = | 69.4938459 | DEG | NORTH DEVIATION ANGLE | = 337.2634010 DEG |
| TILT ANGLE | = | 7.0489025 | DEG | RESOLUTION CONSTANT | = 1.0197480 MTR |
| TILT AZIMUTH | = | 21.8025172 | DEG | SUN AZIMUTH AT PRINCIPAL GND PT | = 90.8455248 DEG |
| SUN ANGLE AT NADIR | = | 66.8109970 | DEG | SUN ARC AT NADIR | = 2026.7378845 KM |
| LONGITUDE DISTANCE TO TARGET | = | -0.0647738 | DEG | LATITUDE DISTANCE TO TARGET | = -0.5430858 DEG |
| LONGITUDE ARC LENGTH TO TARGET | = | -1.9649386 | KM | LATITUDE ARC LENGTH TO TARGET | = -16.4747221 KM |
| FORWARD OVERLAP RATIO | = | 0. | PCT | SIDE OVERLAP RATIO | = 0. PCT |
| TIME BETWEEN PHOTOS | = | 0. | SEC | ALPHA | = -2.9167554 DEG. |

| | X | Y | Z | MAGNITUDE (KM) |
|---|---|---|---|---|
| DIRECTION COSINES TO TARGET | -0.89917464 | -0.24226649 | 0.36440624 | 49.56665182 |
| CAMERA AXIS | -0.95586286 | -0.25392222 | 0.14781643 | 46.99299622 |
| C1 | -0.94718538 | -0.13842141 | 0.28927384 | 48.92758179 |
| C2 | -0.95852001 | -0.28315015 | -0.03264021 | 46.74368286 |
| C3 | -0.93258972 | -0.36093543 | 0.00141812 | 46.75080872 |
| C4 | -0.92125510 | -0.21620670 | 0.32333218 | 48.93539429 |

| | X | Y | Z | X DOT | Y DOT | Z DOT |
|---|---|---|---|---|---|---|
| STATE VECTOR (1950.0) | -278.0813179 | -1604.9932709 | -729.3055573 | 1.7705884 | -0.0096158 | -0.7321696 |

LONG 18.3674 DEG
LATI -1.3786 DEG

LONG 17.8256 DEG
LATI -2.5369 DEG

(1) • 38.78361 KM • (2)

LOW RESOLUTION

34.19530 KM 30.81238 KM

(4) • 38.83108 KM • (3)

LONG 17.3266 DEG
LATI -0.9453 DEG

LONG 16.8868 DEG
LATI -2.1473 DEG

LONG 17.7653 DEG
LATI -1.5459 DEG

LONG 17.5468 DEG
LATI -2.3630 DEG

(1) • 17.02860 KM • (2)

HIGH RESOLUTION

4.34442 KM 4.15049 KM

(4) • 17.03130 KM • (3)

LONG 17.6330 DEG
LATI -1.4909 DEG

LONG 17.4203 DEG
LATI -2.0105 DEG

LOW RESOLUTION 79

| INDEX | LONGITUDE | LATITUDE |
|---|---|---|
| 1 | 18.3673582 | -1.3786224 |
| 2 | 18.3083954 | -1.5036362 |
| 3 | 18.2534783 | -1.6203036 |
| 4 | 18.2016842 | -1.7305437 |
| 5 | 18.1522553 | -1.8359352 |
| 6 | 18.1045506 | -1.9378185 |
| 7 | 18.0580144 | -2.0373711 |
| 8 | 18.0121374 | -2.1356695 |
| 9 | 17.9664414 | -2.2337339 |
| 10 | 17.9204562 | -2.3325779 |
| 11 | 17.8736973 | -2.4332455 |
| 12 | 17.8256466 | -2.5368603 |
| 13 | 17.7754462 | -2.4992336 |
| 14 | 17.6483002 | -2.4629209 |
| 15 | 17.5634267 | -2.4275900 |
| 16 | 17.4801209 | -2.3929499 |
| 17 | 17.3977242 | -2.3587230 |
| 18 | 17.3156099 | -2.3246472 |
| 19 | 17.2331579 | -2.2904672 |
| 20 | 17.1497405 | -2.2559226 |
| 21 | 17.0646970 | -2.2207412 |
| 22 | 16.9773149 | -2.1846334 |
| 23 | 16.8868072 | -2.1472748 |
| 24 | 16.9264917 | -2.0400520 |
| 25 | 16.9649825 | -1.9358190 |
| 26 | 17.0027137 | -1.8334140 |
| 27 | 17.0400872 | -1.7317594 |
| 28 | 17.0774894 | -1.6298043 |
| 29 | 17.1153078 | -1.5264909 |
| 30 | 17.1539469 | -1.4206955 |
| 31 | 17.1938498 | -1.3111914 |
| 32 | 17.2355149 | -1.1965782 |
| 33 | 17.2795289 | -1.0752015 |
| 34 | 17.3266001 | -0.9450489 |
| 35 | 17.4267015 | -0.9873772 |
| 36 | 17.5233700 | -1.0281270 |
| 37 | 17.6174848 | -1.0676798 |
| 38 | 17.7098362 | -1.1063788 |
| 39 | 17.8011601 | -1.1445348 |
| 40 | 17.8921576 | -1.1824440 |
| 41 | 17.9835217 | -1.2203951 |
| 42 | 18.0759537 | -1.2586775 |
| 43 | 18.1701930 | -1.2975899 |
| 44 | 18.2670326 | -1.3374543 |

HIGH RESOLUTION 79

| INDEX | LONGITUDE | LATITUDE |
|---|---|---|
| 1 | 17.7652664 | -1.5458997 |
| 2 | 17.7442045 | -1.5957294 |
| 3 | 17.7235324 | -1.6446438 |
| 4 | 17.7031932 | -1.6927710 |
| 5 | 17.6831357 | -1.7402348 |
| 6 | 17.6633120 | -1.7871480 |
| 7 | 17.6436749 | -1.8336223 |
| 8 | 17.6241791 | -1.8797619 |
| 9 | 17.6047828 | -1.9256711 |
| 10 | 17.5854416 | -1.9714504 |
| 11 | 17.5661154 | -2.0171998 |
| 12 | 17.5467598 | -2.0630185 |
| 13 | 17.5352554 | -2.0582399 |
| 14 | 17.5237608 | -2.0534639 |
| 15 | 17.5122697 | -2.0486913 |
| 16 | 17.5007815 | -2.0439187 |
| 17 | 17.4892964 | -2.0391478 |
| 18 | 17.4778128 | -2.0343769 |
| 19 | 17.4663255 | -2.0296069 |
| 20 | 17.4548380 | -2.0248343 |
| 21 | 17.4433446 | -2.0200600 |
| 22 | 17.4318459 | -2.0152840 |
| 23 | 17.4203386 | -2.0105046 |
| 24 | 17.4391959 | -1.9644700 |
| 25 | 17.4580197 | -1.9185045 |
| 26 | 17.4768560 | -1.8725066 |
| 27 | 17.4957407 | -1.8263772 |
| 28 | 17.5147185 | -1.7800147 |
| 29 | 17.5338311 | -1.7333142 |
| 30 | 17.5531228 | -1.6861705 |
| 31 | 17.5726361 | -1.6384727 |
| 32 | 17.5924208 | -1.5901056 |
| 33 | 17.6125250 | -1.5409453 |
| 34 | 17.6330037 | -1.4908638 |
| 35 | 17.6450396 | -1.4958788 |
| 36 | 17.6570692 | -1.5008879 |
| 37 | 17.6690912 | -1.5058945 |
| 38 | 17.6811094 | -1.5108976 |
| 39 | 17.6931267 | -1.5158981 |
| 40 | 17.7051413 | -1.5208978 |
| 41 | 17.7171578 | -1.5258967 |
| 42 | 17.7291768 | -1.5308955 |
| 43 | 17.7412000 | -1.5358952 |
| 44 | 17.7532299 | -1.5408958 |

PHOTO FRAME NUMBER 1 OF 4

## FRAME 80

| | YEAR | MONTH | DAY | HOUR | MINUTE | SECOND |
|---|---|---|---|---|---|---|
| GMT | 67 | 2 | 17 | 21 | 9 | 3.699 |

| | | | | | |
|---|---|---|---|---|---|
| LONGITUDE OF NADIR POINT | = | 12.8283153 | DEG | LATITUDE OF NADIR POINT | = -1.5039795 DEG |
| LONG OF CAMERA AXIS INTERSECT | = | 12.8663684 | DEG | LATI OF CAMERA AXIS INTERSECT | = -1.3903268 DEG |
| SPACECRAFT RADIUS | = | 1783.3419342 | KM | SPACECRAFT ALTITUDE | = 45.2519379 KM |
| MEAN ALTITUDE RATE | = | 0.0233279 | KM/SEC | TIME FROM PERIAPSIS | = 44.8804350 SEC |
| HORIZONTAL VELOCITY | = | 1.9170178 | KM/SEC | TRUE ANOMALY | = 2.7652996 DEG |
| SCALE FACTOR (HIGH) | = | 0.0134357 | M/KM | TILT DISTANCE (HIGH) | = 49.0059953 MM |
| SCALE FACTOR (LOW) | = | 0.0017620 | M/KM | TILT DISTANCE (LOW) | = 6.4270158 MM |
| IMAGE MOTION COMPENSATION (V/H) | = | 0.0422210 | RAD/SEC | SWING ANGLE | = 177.4985619 DEG |
| EMISSION ANGLE | = | 4.7129998 | DEG | INCIDENCE ANGLE | = 67.9500952 DEG |
| PHASE ANGLE | = | 69.4345493 | DEG | NORTH DEVIATION ANGLE | = 338.9342499 DEG |
| TILT ANGLE | = | 4.5931463 | DEG | RESOLUTION CONSTANT | = 0.9852136 MTR |
| TILT AZIMUTH | = | 18.5068057 | DEG | SUN AZIMUTH AT PRINCIPAL GND PT | = 91.0314388 DEG |
| SUN ANGLE AT NADIR | = | 67.9861307 | DEG | SUN ARC AT NADIR | = 2062.3860168 KM |
| LONGITUDE DISTANCE TO TARGET | = | -0.6716847 | DEG | LATITUDE DISTANCE TO TARGET | = -0.0039795 DEG |
| LONGITUDE ARC LENGTH TO TARGET | = | -20.3758206 | KM | LATITUDE ARC LENGTH TO TARGET | = -0.1207185 KM |
| FORWARD OVERLAP RATIO | = | 0. | PCT | SIDE OVERLAP RATIO | = 0. PCT |
| TIME BETWEEN PHOTOS | = | 0. | SEC | ALPHA | = -1.5546356 DEG. |

| | X | Y | Z | MAGNITUDE (KM) |
|---|---|---|---|---|
| DIRECTION COSINES TO TARGET | -0.98007955 | 0.19685520 | 0.02630822 | 49.73363638 |
| CAMERA AXIS | -0.97527394 | -0.19601457 | 0.10207371 | 45.40155029 |
| C1 | -0.91957320 | 0.23554135 | 0.31449230 | 53.35771179 |
| C2 | -0.93566176 | -0.03122941 | -0.35151362 | 49.87957764 |
| C3 | -0.80230736 | -0.58161194 | -0.13427752 | 49.99978638 |
| C4 | -0.78621881 | -0.31484121 | 0.53172830 | 53.49560547 |

| | X | Y | Z | X DOT | Y DOT | Z DOT |
|---|---|---|---|---|---|---|
| STATE VECTOR (1950.0) | -305.0658531 | -1605.2014618 | -714.5429077 | 1.7738013 | -0.0358031 | -0.7338140 |

LONG 13.5915 DEG
LATI -0.9898 DEG

LONG 13.1203 DEG
LATI -2.1214 DEG

37.18496 KM

(1) (2)

LOW RESOLUTION

32.40590 KM

30.29084 KM

(4)

37.27865 KM

(3)

LONG 12.5948 DEG
LATI -0.6053 DEG

LONG 12.1869 DEG
LATI -1.7646 DEG

LONG 13.0286 DEG
LATI -1.1593 DEG

LONG 12.8333 DEG
LATI -1.6623 DEG

16.36908 KM

(1) (2)

HIGH RESOLUTION

4.16304 KM

4.04158 KM

(4)

16.37444 KM

(3)

LONG 12.9005 DEG
LATI -1.1130 DEG

LONG 12.7088 DEG
LATI -1.6146 DEG

LOW RESOLUTION 80

| INDEX | LONGITUDE | LATITUDE |
|---|---|---|
| 1 | 13.5915353 | -0.9898404 |
| 2 | 13.5418751 | -1.1079685 |
| 3 | 13.4952610 | -1.2190743 |
| 4 | 13.4509779 | -1.3248270 |
| 5 | 13.4084288 | -1.4266284 |
| 6 | 13.3670955 | -1.5256969 |
| 7 | 13.3265141 | -1.6231236 |
| 8 | 13.2862598 | -1.7199321 |
| 9 | 13.2459183 | -1.8171189 |
| 10 | 13.2050678 | -1.9156973 |
| 11 | 13.1632675 | -2.0167397 |
| 12 | 13.1200371 | -2.1214260 |
| 13 | 13.0305015 | -2.0869515 |
| 14 | 12.9439753 | -2.0536816 |
| 15 | 12.8596815 | -2.0213133 |
| 16 | 12.7769220 | -1.9895786 |
| 17 | 12.6950461 | -1.9582237 |
| 18 | 12.6134310 | -1.9270098 |
| 19 | 12.5314589 | -1.8957019 |
| 20 | 12.4485061 | -1.8640619 |
| 21 | 12.3639169 | -1.8318396 |
| 22 | 12.2769774 | -1.7987704 |
| 23 | 12.1869037 | -1.7645580 |
| 24 | 12.2249697 | -1.6576058 |
| 25 | 12.2616440 | -1.5543196 |
| 26 | 12.2973640 | -1.4534984 |
| 27 | 12.3325223 | -1.3540483 |
| 28 | 12.3674829 | -1.2549345 |
| 29 | 12.4026105 | -1.1551361 |
| 30 | 12.4382695 | -1.0536019 |
| 31 | 12.4748511 | -0.9492093 |
| 32 | 12.5127863 | -0.8407024 |
| 33 | 12.5525684 | -0.7266373 |
| 34 | 12.5947860 | -0.6052828 |
| 35 | 12.6907997 | -0.6428232 |
| 36 | 12.7835000 | -0.6789669 |
| 37 | 12.8737276 | -0.7140510 |
| 38 | 12.9622407 | -0.7483795 |
| 39 | 13.0497426 | -0.7822257 |
| 40 | 13.1369042 | -0.8158533 |
| 41 | 13.2243873 | -0.8495176 |
| 42 | 13.3128594 | -0.8834730 |
| 43 | 13.4030226 | -0.9179842 |
| 44 | 13.4956369 | -0.9533364 |

HIGH RESOLUTION 80

| INDEX | LONGITUDE | LATITUDE |
|---|---|---|
| 1 | 13.0285764 | -1.1592607 |
| 2 | 13.0100284 | -1.2070242 |
| 3 | 12.9917645 | -1.2540577 |
| 4 | 12.9737424 | -1.3004757 |
| 5 | 12.9559170 | -1.3463908 |
| 6 | 12.9382458 | -1.3919089 |
| 7 | 12.9206902 | -1.4371333 |
| 8 | 12.9032117 | -1.4821638 |
| 9 | 12.8857707 | -1.5270996 |
| 10 | 12.8683296 | -1.5720380 |
| 11 | 12.8508500 | -1.6170771 |
| 12 | 12.8332949 | -1.6623135 |
| 13 | 12.8219733 | -1.6579729 |
| 14 | 12.8106576 | -1.6536357 |
| 15 | 12.7993476 | -1.6492985 |
| 16 | 12.7880409 | -1.6449639 |
| 17 | 12.7767345 | -1.6406293 |
| 18 | 12.7654301 | -1.6362956 |
| 19 | 12.7541237 | -1.6319618 |
| 20 | 12.7428125 | -1.6276264 |
| 21 | 12.7314969 | -1.6232892 |
| 22 | 12.7201767 | -1.6189512 |
| 23 | 12.7088484 | -1.6146089 |
| 24 | 12.7260923 | -1.5692359 |
| 25 | 12.7432580 | -1.5240611 |
| 26 | 12.7603827 | -1.4789844 |
| 27 | 12.7775060 | -1.4339103 |
| 28 | 12.7946615 | -1.3887379 |
| 29 | 12.8118891 | -1.3433710 |
| 30 | 12.8292257 | -1.2977077 |
| 31 | 12.8467112 | -1.2516450 |
| 32 | 12.8643856 | -1.2050759 |
| 33 | 12.8822939 | -1.1578887 |
| 34 | 12.9004759 | -1.1099655 |
| 35 | 12.9121351 | -1.1144572 |
| 36 | 12.9237859 | -1.1189446 |
| 37 | 12.9354323 | -1.1234286 |
| 38 | 12.9470754 | -1.1279101 |
| 39 | 12.9587126 | -1.1323898 |
| 40 | 12.9703504 | -1.1368679 |
| 41 | 12.9819875 | -1.1413451 |
| 42 | 12.9936277 | -1.1458223 |
| 43 | 13.0052698 | -1.1503012 |
| 44 | 13.0169189 | -1.1547801 |

**********  **********
* PHOTO FRAME NUMBER 2 OF 4 *
**********  **********

## FRAME 81

| | YEAR | MONTH | DAY | HOUR | MINUTE | SECOND |
|---|---|---|---|---|---|---|
| GMT | 67 | 2 | 17 | 21 | 9 | 11.599 |

| | | | | | |
|---|---|---|---|---|---|
| LONGITUDE OF NADIR POINT | = | 13.2806376 | DEG | LATITUDE OF NADIR POINT | = | -1.6806841 | DEG |
| LONG OF CAMERA AXIS INTERSECT | = | 13.3306974 | DEG | LATI OF CAMERA AXIS INTERSECT | = | -1.5711381 | DEG |
| SPACECRAFT RADIUS | = | 1783.5424347 | KM | SPACECRAFT ALTITUDE | = | 45.4524384 | KM |
| MEAN ALTITUDE RATE | = | 0.0274263 | KM/SEC | TIME FROM PERIAPSIS | = | 52.7779617 | SEC |
| HORIZONTAL VELOCITY | = | 1.9167982 | KM/SEC | TRUE ANOMALY | = | 3.2516519 | DEG |
| SCALE FACTOR (HIGH) | = | 0.0133763 | M/KM | TILT DISTANCE (HIGH) | = | 49.0267253 | MM |
| SCALE FACTOR (LOW) | = | 0.0017543 | M/KM | TILT DISTANCE (LOW) | = | 6.4297345 | MM |
| IMAGE MOTION COMPENSATION (V/H) | = | 0.0420343 | RAD/SEC | SWING ANGLE | = | 183.5751286 | DEG |
| EMISSION ANGLE | = | 4.7155241 | DEG | INCIDENCE ANGLE | = | 67.4817524 | DEG |
| PHASE ANGLE | = | 69.4345503 | DEG | NORTH DEVIATION ANGLE | = | 338.9517937 | DEG |
| TILT ANGLE | = | 4.5950813 | DEG | RESOLUTION CONSTANT | = | 0.9895820 | MTR |
| TILT AZIMUTH | = | 24.5912164 | DEG | SUN AZIMUTH AT PRINCIPAL GND PT | = | 90.9486179 | DEG |
| SUN ANGLE AT NADIR | = | 67.5300140 | DEG | SUN ARC AT NADIR | = | 2048.5495605 | KM |
| LONGITUDE DISTANCE TO TARGET | = | -0.2193624 | DEG | LATITUDE DISTANCE TO TARGET | = | -0.1806841 | DEG |
| LONGITUDE ARC LENGTH TO TARGET | = | -6.6544440 | KM | LATITUDE ARC LENGTH TO TARGET | = | -5.4811242 | KM |
| FORWARD OVERLAP RATIO | = | 51.5784497 | PCT | SIDE OVERLAP RATIO | = | 0. | PCT |
| TIME BETWEEN PHOTOS | = | 7.8998566 | SEC | ALPHA | = | -2.0186979 | DEG. |

| | X | Y | Z | MAGNITUDE (KM) |
|---|---|---|---|---|
| DIRECTION COSINES TO TARGET | -0.98545668 | -0.08492585 | 0.14718267 | 46.28348207 |
| CAMERA AXIS | -0.97527771 | -0.19599562 | 0.10207400 | 45.60285950 |
| C1 | -0.91956852 | 0.23555920 | 0.31449262 | 53.76277161 |
| C2 | -0.93566246 | -0.03121118 | -0.35151333 | 50.24902344 |
| C3 | -0.80231871 | -0.58159632 | -0.13427733 | 50.07638550 |
| C4 | -0.78622477 | -0.31482598 | 0.53172852 | 53.56474304 |

| | X | Y | Z | X DOT | Y DOT | Z DOT |
|---|---|---|---|---|---|---|
| STATE VECTOR (1950.0) | -291.0666542 | -1605.4410248 | -720.3214264 | 1.7728337 | -0.0248397 | -0.7289108 |

LONG 14.0615 DEG  LONG 13.5866 DEG
LATI -1.1671 DEG  LATI -2.3073 DEG

* 37.46473 KM *
(1) (2)

LONG 13.4937 DEG  LONG 13.2975 DEG
LATI -1.3389 DEG  LATI -1.8444 DEG

* 16.44818 KM *
(1) (2)

LOW RESOLUTION

32.54998 KM  30.42634 KM

HIGH RESOLUTION

4.18150 KM  4.05956 KM

(4) (3)
* 37.33013 KM *

LONG 13.3585 DEG  LONG 12.6501 DEG
LATI -0.7855 DEG  LATI -1.9464 DEG

(4) (3)
* 16.44048 KM *

LONG 13.3649 DEG  LONG 13.1726 DEG
LATI -1.2897 DEG  LATI -1.7964 DEG

LOW RESOLUTION 81

| INDEX | LONGITUDE | LATITUDE |
|---|---|---|
| 1 | 14.0615194 | -1.1671009 |
| 2 | 14.0114765 | -1.2861468 |
| 3 | 13.9645116 | -1.3981073 |
| 4 | 13.9198983 | -1.5046702 |
| 5 | 13.8770344 | -1.6072477 |
| 6 | 13.8353986 | -1.7070674 |
| 7 | 13.7945273 | -1.8052301 |
| 8 | 13.7539871 | -1.9027686 |
| 9 | 13.7133591 | -2.0006862 |
| 10 | 13.6722246 | -2.1000048 |
| 11 | 13.6301357 | -2.2018037 |
| 12 | 13.5866095 | -2.3072754 |
| 13 | 13.4962666 | -2.2722297 |
| 14 | 13.4090582 | -2.2384476 |
| 15 | 13.3241928 | -2.2056175 |
| 16 | 13.2409607 | -2.1734635 |
| 17 | 13.1587051 | -2.1417270 |
| 18 | 13.0767953 | -2.1101647 |
| 19 | 12.9946158 | -2.0785392 |
| 20 | 12.9115391 | -2.0466124 |
| 21 | 12.8269091 | -2.0141322 |
| 22 | 12.7400286 | -1.9808342 |
| 23 | 12.6501124 | -1.9464212 |
| 24 | 12.6882267 | -1.8392914 |
| 25 | 12.7249475 | -1.7358396 |
| 26 | 12.7607112 | -1.6348612 |
| 27 | 12.7959120 | -1.5352609 |
| 28 | 12.8309166 | -1.4360020 |
| 29 | 12.8660886 | -1.3360601 |
| 30 | 12.9017911 | -1.2343868 |
| 31 | 12.9384166 | -1.1298558 |
| 32 | 12.9763994 | -1.0212114 |
| 33 | 13.0162288 | -0.9070073 |
| 34 | 13.0584967 | -0.7855136 |
| 35 | 13.1545583 | -0.8225597 |
| 36 | 13.2474195 | -0.8582705 |
| 37 | 13.3379073 | -0.8929738 |
| 38 | 13.4267771 | -0.9269634 |
| 39 | 13.5147307 | -0.9605158 |
| 40 | 13.6024395 | -0.9938847 |
| 41 | 13.6905701 | -1.0273245 |
| 42 | 13.7797980 | -1.0610904 |
| 43 | 13.8708358 | -1.0954471 |
| 44 | 13.9644574 | -1.1306797 |

HIGH RESOLUTION 81

| INDEX | LONGITUDE | LATITUDE |
|---|---|---|
| 1 | 13.4936733 | -1.3388784 |
| 2 | 13.4750445 | -1.3868759 |
| 3 | 13.4567004 | -1.4341391 |
| 4 | 13.4385984 | -1.4807850 |
| 5 | 13.4206947 | -1.5269263 |
| 6 | 13.4029468 | -1.5726673 |
| 7 | 13.3853146 | -1.6181145 |
| 8 | 13.3677596 | -1.6633662 |
| 9 | 13.3502431 | -1.7085240 |
| 10 | 13.3327267 | -1.7536826 |
| 11 | 13.3151715 | -1.7989429 |
| 12 | 13.2975430 | -1.8444038 |
| 13 | 13.2861633 | -1.8430333 |
| 14 | 13.2747931 | -1.8356662 |
| 15 | 13.2634298 | -1.8313017 |
| 16 | 13.2520696 | -1.8269390 |
| 17 | 13.2407138 | -1.8225770 |
| 18 | 13.2293599 | -1.8182177 |
| 19 | 13.2180065 | -1.8138575 |
| 20 | 13.2066510 | -1.8094964 |
| 21 | 13.1952921 | -1.8051361 |
| 22 | 13.1839288 | -1.8007725 |
| 23 | 13.1725595 | -1.7964072 |
| 24 | 13.1898650 | -1.7508464 |
| 25 | 13.2070920 | -1.7054845 |
| 26 | 13.2242767 | -1.6602226 |
| 27 | 13.2414612 | -1.6149615 |
| 28 | 13.2586777 | -1.5696039 |
| 29 | 13.2759677 | -1.5240500 |
| 30 | 13.2933656 | -1.4781998 |
| 31 | 13.3109151 | -1.4319483 |
| 32 | 13.3286539 | -1.3851880 |
| 33 | 13.3466245 | -1.3378078 |
| 34 | 13.3648728 | -1.2896900 |
| 35 | 13.3765870 | -1.2941688 |
| 36 | 13.3882954 | -1.2986435 |
| 37 | 13.4000016 | -1.3031164 |
| 38 | 13.4117022 | -1.3075859 |
| 39 | 13.4234031 | -1.3120554 |
| 40 | 13.4351033 | -1.3165232 |
| 41 | 13.4468080 | -1.3209919 |
| 42 | 13.4585146 | -1.3254605 |
| 43 | 13.4702266 | -1.3299317 |
| 44 | 13.4819458 | -1.3344038 |

**********
* PHOTO FRAME NUMBER 3 OF 4 *
**********

## FRAME 82

| | YEAR | MONTH | DAY | HOUR | MINUTE | SECOND |
|---|---|---|---|---|---|---|
| GMT | 67 | 2 | 17 | 21 | 9 | 19.599 |

| | | | | | |
|---|---|---|---|---|---|
| LONGITUDE OF NADIR POINT | = | 13.7385422 | DEG | LATITUDE OF NADIR POINT | = -1.8594285 DEG |
| LONG OF CAMERA AXIS INTERSECT | = | 13.8029112 | DEG | LATI OF CAMERA AXIS INTERSECT | = -1.7539900 DEG |
| SPACECRAFT RADIUS | = | 1783.7783966 | KM | SPACECRAFT ALTITUDE | = 45.6884003 KM |
| MEAN ALTITUDE RATE | = | 0.0315726 | KM/SEC | TIME FROM PERIAPSIS | = 60.7740650 SEC |
| HORIZONTAL VELOCITY | = | 1.9165402 | KM/SEC | TRUE ANOMALY | = 3.7439517 DEG |
| SCALE FACTOR (HIGH) | = | 0.0133062 | M/KM | TILT DISTANCE (HIGH) | = 49.6058159 MM |
| SCALE FACTOR (LOW) | = | 0.0017451 | M/KM | TILT DISTANCE (LOW) | = 6.5056808 MM |
| IMAGE MOTION COMPENSATION (V/H) | = | 0.0418113 | RAD/SEC | SWING ANGLE | = 189.6515713 DEG |
| EMISSION ANGLE | = | 4.7716206 | DEG | INCIDENCE ANGLE | = 67.0077820 DEG |
| PHASE ANGLE | = | 69.4345522 | DEG | NORTH DEVIATION ANGLE | = 338.9725342 DEG |
| TILT ANGLE | = | 4.6491203 | DEG | RESOLUTION CONSTANT | = 0.9947978 MIR |
| TILT AZIMUTH | = | 30.5937576 | DEG | SUN AZIMUTH AT PRINCIPAL GND PT | = 90.8613768 DEG |
| SUN ANGLE AT NADIR | = | 67.0685692 | DEG | SUN ARC AT NADIR | = 2034.5514374 KM |
| LONGITUDE DISTANCE TO TARGET | = | 0.2385422 | DEG | LATITUDE DISTANCE TO TARGET | = -0.3594285 DEG |
| LONGITUDE ARC LENGTH TO TARGET | = | 7.2362714 | KM | LATITUDE ARC LENGTH TO TARGET | = -10.9034039 KM |
| FORWARD OVERLAP RATIO | = | 51.1935673 | PCT | SIDE OVERLAP RATIO | = 0. PCT |
| TIME BETWEEN PHOTOS | = | 8.0002785 | SEC | ALPHA | = -2.4883343 DEG. |

| | X | Y | Z | MAGNITUDE (KM) |
|---|---|---|---|---|
| DIRECTION COSINES TO TARGET | -0.89009731 | -0.37415402 | 0.26026057 | 47.57238865 |
| CAMERA AXIS | -0.97528154 | -0.19597641 | 0.10207428 | 45.84321594 |
| C1 | -0.91956378 | 0.23557728 | 0.31449293 | 54.21897888 |
| C2 | -0.93566319 | -0.03119271 | -0.35151304 | 50.66583252 |
| C3 | -0.80233022 | -0.58158050 | -0.13427714 | 50.19361877 |
| C4 | -0.78623082 | -0.31481054 | 0.53172872 | 53.67733765 |

| | X | Y | Z | X DOT | Y DOT | Z DOT |
|---|---|---|---|---|---|---|
| STATE VECTOR (1950.0) | -276.8778572 | -1605.5953369 | -726.1320038 | 1.7747930 | -0.0137431 | -0.7239091 |

LONG 14.5381 DEG
LATI -1.3460 DEG

LONG 14.0594 DEG
LATI -2.4959 DEG

(1) • 37.77997 KM • (2)

LONG 13.9648 DEG
LATI -1.5203 DEG

LONG 13.7677 DEG
LATI -2.0288 DEG

(1) • 16.54153 KM • (2)

LOW RESOLUTION

32.72601 KM 30.59116 KM

HIGH RESOLUTION

4.20391 KM 4.08134 KM

(4) • 37.41191 KM • (3)

(4) • 16.52046 KM • (3)

LONG 13.5278 DEG
LATI -0.9671 DEG

LONG 13.1186 DEG
LATI -2.1306 DEG

LONG 13.8352 DEG
LATI -1.4712 DEG

LONG 13.6420 DEG
LATI -1.9804 DEG

LOW RESOLUTION 82

| INDEX | LONGITUDE | LATITUDE |
|---|---|---|
| 1 | 14.5381234 | -1.3459972 |
| 2 | 14.4876529 | -1.4660753 |
| 3 | 14.4402914 | -1.5790005 |
| 4 | 14.3953078 | -1.6864753 |
| 5 | 14.3520920 | -1.7899279 |
| 6 | 14.3101199 | -1.8905938 |
| 7 | 14.2689196 | -1.9895871 |
| 8 | 14.2280571 | -2.0879487 |
| 9 | 14.1871090 | -2.1866910 |
| 10 | 14.1456530 | -2.2868438 |
| 11 | 14.1032364 | -2.3894981 |
| 12 | 14.0593773 | -2.4958544 |
| 13 | 13.9681274 | -2.4601948 |
| 14 | 13.8801436 | -2.4258595 |
| 15 | 13.7946213 | -2.3925290 |
| 16 | 13.7108357 | -2.3599191 |
| 17 | 13.6281207 | -2.3277668 |
| 18 | 13.5458405 | -2.2958263 |
| 19 | 13.4633759 | -2.2638533 |
| 20 | 13.3800968 | -2.2316080 |
| 21 | 13.2953572 | -2.1988410 |
| 22 | 13.2084554 | -2.1652826 |
| 23 | 13.1186203 | -2.1306407 |
| 24 | 13.1568085 | -2.0232454 |
| 25 | 13.1936036 | -1.9195427 |
| 26 | 13.2294370 | -1.8183235 |
| 27 | 13.2647085 | -1.7184909 |
| 28 | 13.2997818 | -1.6190041 |
| 29 | 13.3350223 | -1.5188394 |
| 30 | 13.3707942 | -1.4169432 |
| 31 | 13.4074917 | -1.3121877 |
| 32 | 13.4455477 | -1.2033162 |
| 33 | 13.4854558 | -1.0888790 |
| 34 | 13.5278043 | -0.9671445 |
| 35 | 13.6240033 | -1.0037227 |
| 36 | 13.7171068 | -1.0390229 |
| 37 | 13.8079385 | -1.0733651 |
| 38 | 13.8972501 | -1.1070413 |
| 39 | 13.9857399 | -1.1403163 |
| 40 | 14.0740831 | -1.1734470 |
| 41 | 14.1629516 | -1.2066835 |
| 42 | 14.2530297 | -1.2402804 |
| 43 | 14.3450428 | -1.2745022 |
| 44 | 14.4397820 | -1.3096358 |

HIGH RESOLUTION 82

| INDEX | LONGITUDE | LATITUDE |
|---|---|---|
| 1 | 13.9647980 | -1.5203292 |
| 2 | 13.9460723 | -1.5686041 |
| 3 | 13.9276330 | -1.6161397 |
| 4 | 13.9094373 | -1.6630546 |
| 5 | 13.8914403 | -1.7094614 |
| 6 | 13.8736005 | -1.7554662 |
| 7 | 13.8558779 | -1.8011755 |
| 8 | 13.8382326 | -1.8466885 |
| 9 | 13.8206271 | -1.8921067 |
| 10 | 13.8030214 | -1.9375266 |
| 11 | 13.7853785 | -1.9830489 |
| 12 | 13.7676592 | -2.0287719 |
| 13 | 13.7562119 | -2.0243681 |
| 14 | 13.7447752 | -2.0199678 |
| 15 | 13.7333468 | -2.0155708 |
| 16 | 13.7219242 | -2.0111765 |
| 17 | 13.7105085 | -2.0067847 |
| 18 | 13.6990945 | -2.0023937 |
| 19 | 13.6876823 | -1.9980036 |
| 20 | 13.6762706 | -1.9936144 |
| 21 | 13.6648582 | -1.9892251 |
| 22 | 13.6534411 | -1.9848333 |
| 23 | 13.6420220 | -1.9804415 |
| 24 | 13.6594014 | -1.9346528 |
| 25 | 13.6767009 | -1.8890647 |
| 26 | 13.6939631 | -1.8435773 |
| 27 | 13.7112198 | -1.7980917 |
| 28 | 13.7285112 | -1.7525095 |
| 29 | 13.7458746 | -1.7067302 |
| 30 | 13.7633500 | -1.6606520 |
| 31 | 13.7809750 | -1.6141717 |
| 32 | 13.7987903 | -1.5671818 |
| 33 | 13.8168405 | -1.5195685 |
| 34 | 13.8351692 | -1.4712133 |
| 35 | 13.8469512 | -1.4756828 |
| 36 | 13.8587276 | -1.4801472 |
| 37 | 13.8705031 | -1.4846108 |
| 38 | 13.8822752 | -1.4890743 |
| 39 | 13.8940492 | -1.4935361 |
| 40 | 13.9058249 | -1.4979988 |
| 41 | 13.9176050 | -1.5024606 |
| 42 | 13.9293922 | -1.5069250 |
| 43 | 13.9411837 | -1.5113902 |
| 44 | 13.9529861 | -1.5158589 |

**********  **********
* PHOTO FRAME NUMBER 4 OF 4 *
**********  **********

## FRAME 83

| | YEAR | MONTH | DAY | HOUR | MINUTE | SECOND |
|---|---|---|---|---|---|---|
| GMT | 67 | 2 | 17 | 21 | 9 | 27.699 |

| | | | | | |
|---|---|---|---|---|---|
| LONGITUDE OF NADIR POINT | = | 14.2022476 | DEG | LATITUDE OF NADIR POINT | = | -2.0402782 | DEG |
| LONG OF CAMERA AXIS INTERSECT | = | 14.2772710 | DEG | LATI OF CAMERA AXIS INTERSECT | = | -1.9389566 | DEG |
| SPACECRAFT RADIUS | = | 1784.9511627 | KM | SPACECRAFT ALTITUDE | = | 45.9611664 | KM |
| MEAN ALTITUDE RATE | = | 0.0357684 | KM/SEC | TIME FROM PERIAPSIS | = | 68.6727398 | SEC |
| HORIZONTAL VELOCITY | = | 1.9162429 | KM/SEC | TRUE ANOMALY | = | 4.2424213 | DEG |
| SCALE FACTOR (HIGH) | = | 0.0132252 | M/KM | TILT DISTANCE (HIGH) | = | 50.7439547 | MM |
| SCALE FACTOR (LOW) | = | 0.0017344 | M/KM | TILT DISTANCE (LOW) | = | 6.6549449 | MM |
| IMAGE MOTION COMPENSATION (V/H) | = | 0.0415517 | RAD/SEC | SWING ANGLE | = | 195.5964317 | DEG |
| EMISSION ANGLE | = | 4.8813478 | DEG | INCIDENCE ANGLE | = | 66.5279455 | DEG |
| PHASE ANGLE | = | 69.4345541 | DEG | NORTH DEVIATION ANGLE | = | 338.9965897 | DEG |
| TILT ANGLE | = | 4.7553044 | DEG | RESOLUTION CONSTANT | = | 1.0008940 | MTR |
| TILT AZIMUTH | = | 36.5028496 | DEG | SUN AZIMUTH AT PRINCIPAL GND PT | = | 93.7695131 | DEG |
| SUN ANGLE AT NADIR | = | 66.6015940 | DEG | SUN ARC AT NADIR | = | 2020.3855743 | KM |
| LONGITUDE DISTANCE TO TARGET | = | 0.7022476 | DEG | LATITUDE DISTANCE TO TARGET | = | -0.5402782 | DEG |
| LONGITUDE ARC LENGTH TO TARGET | = | 21.3029578 | KM | LATITUDE ARC LENGTH TO TARGET | = | -16.3895516 | KM |
| FORWARD OVERLAP RATIO | = | 50.8335452 | PCT | SIDE OVERLAP RATIO | = | 0. | PCT |
| TIME BETWEEN PHOTOS | = | 8.1000566 | SEC | ALPHA | = | -2.9637876 | DEG. |

| | X | Y | Z | MAGNITUDE (KM) |
|---|---|---|---|---|
| DIRECTION COSINES TO TARGET | -0.72895011 | -0.59570087 | 0.33730135 | 53.41820860 |
| CAMERA AXIS | -0.97528542 | -0.19595696 | 0.10207456 | 46.12414551 |
| C1 | -0.91955899 | 0.23559560 | 0.31449325 | 54.72882080 |
| C2 | -0.93566392 | -0.03117400 | -0.35151275 | 51.13229370 |
| C3 | -0.80234186 | -0.58156448 | -0.13427696 | 50.35270691 |
| C4 | -0.78623692 | -0.31479491 | 0.53172894 | 53.83462524 |

| | X | Y | Z | X DOT | Y DOT | Z DOT |
|---|---|---|---|---|---|---|
| STATE VECTOR (1950.0) | -262.4925652 | -1605.6611633 | -731.9757385 | 1.7766763 | -0.0025091 | -0.7188054 |

LONG 15.0216 DEG
LATI -1.5266 DEG

LONG 14.5386 DEG
LATI -2.6873 DEG

(1) • 38.13249 KM • (2)

LOW RESOLUTION

32.93529 KM 30.78653 KM

(4) • 37.52486 KM • (3)

LONG 14.0330 DEG
LATI -1.1502 DEG

LONG 13.5927 DEG
LATI -2.3173 DEG

LONG 14.4422 DEG
LATI -1.7037 DEG

LONG 14.2439 DEG
LATI -2.2155 DEG

(1) • 16.04970 KM • (2)

HIGH RESOLUTION

4.23040 KM 4.10707 KM

(4) • 16.01493 KM • (3)

LONG 14.3116 DEG
LATI -1.6546 DEG

LONG 14.1175 DEG
LATI -2.1668 DEG

LOW RESOLUTION 83

| INDEX | LONGITUDE | LATITUDE |
|---|---|---|
| 1 | 15.0216459 | -1.5265840 |
| 2 | 14.9706988 | -1.6478147 |
| 3 | 14.9228967 | -1.7618182 |
| 4 | 14.8775008 | -1.8703132 |
| 5 | 14.8338915 | -1.9747425 |
| 6 | 14.7915417 | -2.0763570 |
| 7 | 14.7499751 | -2.1762792 |
| 8 | 14.7087517 | -2.2755612 |
| 9 | 14.6674467 | -2.3752255 |
| 10 | 14.6256317 | -2.4763141 |
| 11 | 14.5828516 | -2.5799237 |
| 12 | 14.5386196 | -2.6872713 |
| 13 | 14.4463552 | -2.6509492 |
| 14 | 14.3575017 | -2.6160187 |
| 15 | 14.2712312 | -2.5821478 |
| 16 | 14.1868069 | -2.5490462 |
| 17 | 14.1035488 | -2.5164423 |
| 18 | 14.0208175 | -2.4840868 |
| 19 | 13.9379901 | -2.4517348 |
| 20 | 13.8544351 | -2.4191411 |
| 21 | 13.7695037 | -2.3860531 |
| 22 | 13.6825022 | -2.3522044 |
| 23 | 13.5926676 | -2.3173021 |
| 24 | 13.6309627 | -2.2095499 |
| 25 | 13.6678578 | -2.1055082 |
| 26 | 13.7037891 | -2.0039638 |
| 27 | 13.7391571 | -1.9038136 |
| 28 | 13.7743261 | -1.8040169 |
| 29 | 13.8096608 | -1.7035448 |
| 30 | 13.8455304 | -1.6013387 |
| 31 | 13.8823268 | -1.4962707 |
| 32 | 13.9204837 | -1.3870799 |
| 33 | 13.9604986 | -1.2723131 |
| 34 | 14.0029602 | -1.1502337 |
| 35 | 14.0993841 | -1.1863688 |
| 36 | 14.1928190 | -1.2212822 |
| 37 | 14.2840834 | -1.2552871 |
| 38 | 14.3739207 | -1.2886671 |
| 39 | 14.4630363 | -1.3216860 |
| 40 | 14.5521065 | -1.3545972 |
| 41 | 14.6418068 | -1.3876494 |
| 42 | 14.7328360 | -1.4210968 |
| 43 | 14.8259321 | -1.4552042 |
| 44 | 14.9219004 | -1.4902602 |

HIGH RESOLUTION 83

| INDEX | LONGITUDE | LATITUDE |
|---|---|---|
| 1 | 14.4422166 | -1.7036822 |
| 2 | 14.4233764 | -1.7522765 |
| 3 | 14.4048271 | -1.8001288 |
| 4 | 14.3865228 | -1.8473544 |
| 5 | 14.3684188 | -1.8940695 |
| 6 | 14.3504722 | -1.9403807 |
| 7 | 14.3326441 | -1.9863932 |
| 8 | 14.3148947 | -2.0322084 |
| 9 | 14.2971852 | -2.0779279 |
| 10 | 14.2794755 | -2.1236509 |
| 11 | 14.2617282 | -2.1694755 |
| 12 | 14.2439044 | -2.2155033 |
| 13 | 14.2323788 | -2.2110611 |
| 14 | 14.2208641 | -2.2066241 |
| 15 | 14.2093589 | -2.2021913 |
| 16 | 14.1978644 | -2.1977610 |
| 17 | 14.1863756 | -2.1933334 |
| 18 | 14.1748912 | -2.1889082 |
| 19 | 14.1634098 | -2.1844840 |
| 20 | 14.1519314 | -2.1800623 |
| 21 | 14.1404524 | -2.1756397 |
| 22 | 14.1289723 | -2.1712172 |
| 23 | 14.1174890 | -2.1667921 |
| 24 | 14.1349576 | -2.1207361 |
| 25 | 14.1523459 | -2.0748816 |
| 26 | 14.1696953 | -2.0291288 |
| 27 | 14.1870393 | -1.9833785 |
| 28 | 14.2044204 | -1.9375300 |
| 29 | 14.2218724 | -1.8914851 |
| 30 | 14.2394366 | -1.8451397 |
| 31 | 14.2571528 | -1.7983896 |
| 32 | 14.2750615 | -1.7511273 |
| 33 | 14.2932036 | -1.7032383 |
| 34 | 14.3116285 | -1.6546030 |
| 35 | 14.3234864 | -1.6590640 |
| 36 | 14.3353436 | -1.6635241 |
| 37 | 14.3472002 | -1.6679834 |
| 38 | 14.3590572 | -1.6724409 |
| 39 | 14.3709159 | -1.6768985 |
| 40 | 14.3827801 | -1.6813578 |
| 41 | 14.3946476 | -1.6858179 |
| 42 | 14.4065247 | -1.6902788 |
| 43 | 14.4184110 | -1.6947432 |
| 44 | 14.4303083 | -1.6992110 |

**********
* PHOTO FRAME NUMBER 1 OF 1 *
**********

## FRAME 84

| | YEAR | MONTH | DAY | HOUR | MINUTE | SECOND |
|---|---|---|---|---|---|---|
| GMT | 67 | 2 | 18 | 0 | 35 | 14.300 |

| | | | | | |
|---|---|---|---|---|---|
| LONGITUDE OF NADIR POINT | = | 2.8573791 | DEG | LATITUDE OF NADIR POINT | = 1.6814286 DEG |
| LONG OF CAMERA AXIS INTERSECT | = | -1.1419256 | DEG | LATI OF CAMERA AXIS INTERSECT | = 0.8531504 DEG |
| SPACECRAFT RADIUS | = | 1784.9969940 | KM | SPACECRAFT ALTITUDE | = 46.9069977 KM |
| MEAN ALTITUDE RATE | = | -0.0002433 | KM/SEC | TIME FROM PERIAPSIS | = -96.7757406 SEC |
| HORIZONTAL VELOCITY | = | 1.9152661 | KM/SEC | TRUE ANOMALY | = 354.0396461 DEG |
| SCALE FACTOR (HIGH) | = | 0.0045530 | M/KM | TILT DISTANCE (HIGH) | = 1471.0732117 MM |
| SCALE FACTOR (LOW) | = | 0.0005971 | M/KM | TILT DISTANCE (LOW) | = 192.9276333 MM |
| IMAGE MOTION COMPENSATION (V/H) | = | 0.0091996 | RAD/SEC | SWING ANGLE | = 31.9094279 DEG |
| EMISSION ANGLE | = | 71.5611906 | DEG | INCIDENCE ANGLE | = 80.2675915 DEG |
| PHASE ANGLE | = | 15.6198422 | DEG | NORTH DEVIATION ANGLE | = 305.6711426 DEG |
| TILT ANGLE | = | 67.4780111 | DEG | RESOLUTION CONSTANT | = 2.9073271 MTR |
| TILT AZIMUTH | = | 258.3453064 | DEG | SUN AZIMUTH AT PRINCIPAL GND PT | = 91.6443357 DEG |
| SUN ANGLE AT NADIR | = | 76.2969084 | DEG | SUN ARC AT NADIR | = 2314.4967346 KM |
| LONGITUDE DISTANCE TO TARGET | = | 4.1903791 | DEG | LATITUDE DISTANCE TO TARGET | = 3.7644286 DEG |
| LONGITUDE ARC LENGTH TO TARGET | = | 127.1167994 | KM | LATITUDE ARC LENGTH TO TARGET | = 23.1892428 KM |
| FORWARD OVERLAP RATIO | = | 0. | PCT | SIDE OVERLAP RATIO | = 0. PCT |
| TIME BETWEEN PHOTOS | = | 0. | SEC | ALPHA | = 57.8625569 DEG. |

| | X | Y | Z | MAGNITUDE (KM) |
|---|---|---|---|---|
| DIRECTION COSINES TO TARGET | -0.32087714 | -0.93050260 | -0.17664305 | 139.03458977 |
| CAMERA AXIS | -0.33182970 | -0.92237638 | -0.19776467 | 133.97821045 |
| C1 | -0.49081664 | -0.86131623 | -0.13127600 | 90.51564026 |
| C2 | -0.20460922 | -0.92187263 | -0.32906827 | 240.47278023 |
| C3 | -0.17349386 | -0.95246859 | -0.25040662 | 387.22631454 |
| C4 | -0.44795845 | -0.89204884 | -0.05985063 | 99.42942810 |

| | X | Y | Z | X DOT | Y DOT | Z DOT |
|---|---|---|---|---|---|---|
| STATE VECTOR (1950.0) | -551.1968307 | -1586.5311737 | -604.4131012 | 1.7197267 | -0.2315140 | -0.8122255 |

LONG 1.6152 DEG
LATI 1.2841 DEG

LONG -5.8137 DEG
LATI -5.1363 DEG

* 61.69711 KM *
(1) (2)

LOW RESOLUTION

65.31349 KM 341.58928 KM

(4) (3)
* 99.16403 KM *

LONG -0.0285 DEG
LATI 2.6607 DEG

LONG 0.4308 DEG
LATI 0.2308 DEG

LONG 0.3621 DEG
LATI 1.3350 DEG

LONG -4.3806 DEG
LATI -0.8820 DEG

* 158.74983 KM *
(1) (2)

HIGH RESOLUTION

12.26381 KM 240.47278 KM

(4) (3)
* 292.74898 KM *

LONG 0.7082 DEG
LATI 1.5306 DEG

LONG -9.2695 DEG
LATI -1.4760 DEG

LOW RESOLUTION 84

| INDEX | LONGITUDE | LATITUDE |
|---|---|---|
| 1 | 1.6152434 | 1.2841455 |
| 2 | 1.4830253 | 1.1621370 |
| 3 | 1.3346493 | 1.0255358 |
| 4 | 1.1649209 | 0.8696888 |
| 5 | 0.9663604 | 0.6879324 |
| 6 | 0.7276840 | 0.4702602 |
| 7 | 0.4308341 | 0.2007734 |
| 8 | 0.0445450 | -0.1478429 |
| 9 | -0.4919000 | -0.6280538 |
| 10 | -1.3208698 | -1.3610654 |
| 11 | -2.9429543 | -2.7629908 |
| 12 | 0. | 0. |
| 13 | 0. | 0. |
| 14 | 0. | 0. |
| 15 | 0. | 0. |
| 16 | 0. | 0. |
| 17 | 0. | 0. |
| 18 | 0. | 0. |
| 19 | 0. | 0. |
| 20 | 0. | 0. |
| 21 | 0. | 0. |
| 22 | 0. | 0. |
| 23 | 0. | 0. |
| 24 | 0. | 0. |
| 25 | 0. | 0. |
| 26 | 0. | 0. |
| 27 | 0. | 0. |
| 28 | 0. | 0. |
| 29 | -8.6826900 | 2.8260932 |
| 30 | -3.6854061 | 2.6178467 |
| 31 | -2.1191652 | 2.6160187 |
| 32 | -1.1798605 | 2.6294409 |
| 33 | -0.5242853 | 2.6452596 |
| 34 | -0.0285229 | 2.6607437 |
| 35 | 0.2321851 | 2.4478535 |
| 36 | 0.4508957 | 2.2676893 |
| 37 | 0.6387789 | 2.1117707 |
| 38 | 0.8033707 | 1.9743037 |
| 39 | 0.9499777 | 1.8511674 |
| 40 | 1.0824674 | 1.7393247 |
| 41 | 1.2037454 | 1.6364766 |
| 42 | 1.3160522 | 1.5408352 |
| 43 | 1.4211573 | 1.4509746 |
| 44 | 1.5204933 | 1.3657347 |

CORNER 2, 3 OF LOW RESOLUTION FRAME 1 IS OFF THE MOON

HIGH RESOLUTION 84

| INDEX | LONGITUDE | LATITUDE |
|---|---|---|
| 1 | 0.3620939 | 1.3349733 |
| 2 | 0.2029368 | 1.2558856 |
| 3 | 0.0257497 | 1.1682185 |
| 4 | -0.1734663 | 1.0701344 |
| 5 | -0.4000544 | 0.9591933 |
| 6 | -0.6613467 | 0.8320784 |
| 7 | -0.9677934 | 0.6841126 |
| 8 | -1.3349741 | 0.5084120 |
| 9 | -1.7875629 | 0.2942283 |
| 10 | -2.3682212 | 0.0233003 |
| 11 | -3.1613291 | -0.3397438 |
| 12 | -4.3805827 | -0.8820438 |
| 13 | -4.6437773 | -0.9142942 |
| 14 | -4.9360820 | -0.9525569 |
| 15 | -5.2653313 | -0.9987478 |
| 16 | -5.6434368 | -1.0558482 |
| 17 | -6.0900766 | -1.1289090 |
| 18 | -6.6424443 | -1.2277196 |
| 19 | -7.3900221 | -1.3764624 |
| 20 | -8.7684430 | -1.6966480 |
| 21 | 0. | 0. |
| 22 | 0. | 0. |
| 23 | 0. | 0. |
| 24 | -5.9067338 | -0.5049243 |
| 25 | -4.0627809 | 0.0833070 |
| 26 | -3.0247082 | 0.4329051 |
| 27 | -2.3058547 | 0.6827944 |
| 28 | -1.7625030 | 0.8759120 |
| 29 | -1.3303501 | 1.0321133 |
| 30 | -0.9747021 | 1.1623940 |
| 31 | -0.6746383 | 1.2735289 |
| 32 | -0.4165664 | 1.3700002 |
| 33 | -0.1911838 | 1.4549276 |
| 34 | 0.0081746 | 1.5305702 |
| 35 | 0.0434904 | 1.5112092 |
| 36 | 0.0781045 | 1.4921999 |
| 37 | 0.1120431 | 1.4735288 |
| 38 | 0.1453329 | 1.4551837 |
| 39 | 0.1779971 | 1.4371529 |
| 40 | 0.2100603 | 1.4194260 |
| 41 | 0.2415438 | 1.4019894 |
| 42 | 0.2724696 | 1.3848362 |
| 43 | 0.3028570 | 1.3679554 |
| 44 | 0.3327260 | 1.3513384 |

CORNER 3 OF HIGH RESOLUTION FRAME 1 IS OFF THE MOON

**********  **********
* PHOTO FRAME NUMBER 1 OF 1 *
**********  **********

## FRAME 85

| | YEAR | MONTH | DAY | HOUR | MINUTE | SECOND |
|---|---|---|---|---|---|---|
| GMT | 67 | 2 | 18 | 4 | 3 | 4.909 |

| | | | | | |
|---|---|---|---|---|---|
| LONGITUDE OF NADIR POINT | = | -1.3618088 | DEG | LATITUDE OF NADIR POINT | = 2.5613231 DEG |
| LONG OF CAMERA AXIS INTERSECT | = | -0.4282187 | DEG | LATI OF CAMERA AXIS INTERSECT | = 4.9818946 DEG |
| SPACECRAFT RADIUS | = | 1787.3133240 | KM | SPACECRAFT ALTITUDE | = 49.2233276 KM |
| MEAN ALTITUDE RATE | = | -0.0717248 | KM/SEC | TIME FROM PERIAPSIS | = -138.4677124 SEC |
| HORIZONTAL VELOCITY | = | 1.9127336 | KM/SEC | TRUE ANOMALY | = 351.4780197 DEG |
| SCALE FACTOR (HIGH) | = | 0.0065413 | M/KM | TILT DISTANCE (HIGH) | = 934.3677521 MM |
| SCALE FACTOR (LOW) | = | 0.0008579 | M/KM | TILT DISTANCE (LOW) | = 122.5400333 MM |
| IMAGE MOTION COMPENSATION (V/H) | = | 0.0205212 | RAD/SEC | SWING ANGLE | = 178.2875118 DEG |
| EMISSION ANGLE | = | 59.4365287 | DEG | INCIDENCE ANGLE | = 77.9536314 DEG |
| PHASE ANGLE | = | 99.4001837 | DEG | NORTH DEVIATION ANGLE | = 320.8919220 DEG |
| TILT ANGLE | = | 56.8615742 | DEG | RESOLUTION CONSTANT | = 2.0235991 MTR |
| TILT AZIMUTH | = | 21.1800113 | DEG | SUN AZIMUTH AT PRINCIPAL GND PT | = 92.5801382 DEG |
| SUN ANGLE AT NADIR | = | 78.7883549 | DEG | SUN ARC AT NADIR | = 2330.0757446 KM |
| LONGITUDE DISTANCE TO TARGET | = | -0.8618088 | DEG | LATITUDE DISTANCE TO TARGET | = -2.4186769 DEG |
| LONGITUDE ARC LENGTH TO TARGET | = | -26.1433082 | KM | LATITUDE ARC LENGTH TO TARGET | = -73.3715143 KM |
| FORWARD OVERLAP RATIO | = | 0. | PCT | SIDE OVERLAP RATIO | = 0. PCT |
| TIME BETWEEN PHOTOS | = | 0. | SEC | ALPHA | = -30.1811638 DEG. |

| | X | Y | Z | MAGNITUDE (KM) |
|---|---|---|---|---|
| DIRECTION COSINES TO TARGET | -0.57590772 | 0.29366282 | 0.76294983 | 93.04496098 |
| CAMERA AXIS | -0.57391953 | 0.31626370 | 0.75537649 | 93.25341797 |
| C1 | -0.41913597 | 0.38844096 | 0.82063309 | 137.79283142 |
| C2 | -0.70827938 | 0.31573599 | 0.63138824 | 72.88783264 |
| C3 | -0.70951931 | 0.23351503 | 0.66487073 | 73.13954163 |
| C4 | -0.42037590 | 0.30622000 | 0.85411558 | 138.77635956 |

| | X | Y | Z | X DOT | Y DOT | Z DOT |
|---|---|---|---|---|---|---|
| STATE VECTOR (1950.0) | -620.2993851 | -1575.9627686 | -571.0157318 | 1.6990245 | -0.2851842 | -0.8340744 |

LONG 6.2163 DEG  LONG -0.3929 DEG
LATI 11.3406 DEG  LATI 3.4012 DEG

(1) * 307.85009 KM * (2)

LOW RESOLUTION

226.05249 KM  38.50643 KM

(4) * 64.09696 KM * (3)

LONG -0.6640 DEG  LONG -1.5622 DEG
LATI 14.8953 DEG  LATI 3.9009 DEG

LONG 0.3679 DEG  LONG -0.6419 DEG
LATI 6.3944 DEG  LATI 4.1743 DEG

(1) * 73.92637 KM * (2)

HIGH RESOLUTION

12.31695 KM  6.48745 KM

(4) * 74.65881 KM * (3)

LONG 0.0021 DEG  LONG -0.8382 DEG
LATI 6.5753 DEG  LATI 4.2605 DEG

LOW RESOLUTION 85

| INDEX | LONGITUDE | LATITUDE |
|---|---|---|
| 1 | 0. | 0. |
| 2 | 4.3466393 | 9.1827418 |
| 3 | 2.4033286 | 6.8632292 |
| 4 | 1.5593281 | 5.8329917 |
| 5 | 1.0404499 | 5.1931242 |
| 6 | 0.6771401 | 4.7422540 |
| 7 | 0.4030816 | 4.4006310 |
| 8 | 0.1857057 | 4.1287579 |
| 9 | 0.0067766 | 3.9043768 |
| 10 | -0.1448512 | 3.7138214 |
| 11 | -0.2764280 | 3.5481543 |
| 12 | -0.3929339 | 3.4012352 |
| 13 | -0.5037743 | 3.4477377 |
| 14 | -0.6111175 | 3.4929433 |
| 15 | -0.7159165 | 3.5372396 |
| 16 | -0.8190387 | 3.5809853 |
| 17 | -0.9213037 | 3.6245192 |
| 18 | -1.0234936 | 3.6681752 |
| 19 | -1.1263972 | 3.7122906 |
| 20 | -1.2308206 | 3.7572170 |
| 21 | -1.3376242 | 3.8033327 |
| 22 | -1.4477440 | 3.8510544 |
| 23 | -1.5622316 | 3.9008593 |
| 24 | -1.5429534 | 4.0938053 |
| 25 | -1.5212709 | 4.3123944 |
| 26 | -1.4963988 | 4.5652078 |
| 27 | -1.4672100 | 4.8648815 |
| 28 | -1.4319662 | 5.2310224 |
| 29 | -1.3878568 | 5.6961813 |
| 30 | -1.3298924 | 6.3197579 |
| 31 | -1.2479131 | 7.2270990 |
| 32 | -1.1153938 | 8.7637182 |
| 33 | -0.7717226 | 13.2700951 |
| 34 | 0. | 0. |
| 35 | 0. | 0. |
| 36 | 0. | 0. |
| 37 | 0. | 0. |
| 38 | 0. | 0. |
| 39 | 0. | 0. |
| 40 | 0. | 0. |
| 41 | 0. | 0. |
| 42 | 0. | 0. |
| 43 | 0. | 0. |
| 44 | 0. | 0. |

CORNER 1,4 OF LOW RESOLUTION FRAME 1 IS OFF THE MOON

HIGH RESOLUTION 85

| INDEX | LONGITUDE | LATITUDE |
|---|---|---|
| 1 | 0.3678954 | 6.3943684 |
| 2 | 0.1969582 | 6.0198383 |
| 3 | 0.0551068 | 5.7086037 |
| 4 | -0.0652386 | 5.4442660 |
| 5 | -0.1691326 | 5.2158576 |
| 6 | -0.2601073 | 5.0156990 |
| 7 | -0.3407240 | 4.8382165 |
| 8 | -0.4128916 | 4.6792464 |
| 9 | -0.4780688 | 4.5356092 |
| 10 | -0.5373924 | 4.4048171 |
| 11 | -0.5917642 | 4.2849029 |
| 12 | -0.6419046 | 4.1742786 |
| 13 | -0.6597211 | 4.1820667 |
| 14 | -0.6775343 | 4.1898608 |
| 15 | -0.6953474 | 4.1976617 |
| 16 | -0.7131605 | 4.2054721 |
| 17 | -0.7309805 | 4.2132918 |
| 18 | -0.7488073 | 4.2211226 |
| 19 | -0.7666477 | 4.2289644 |
| 20 | -0.7844984 | 4.2368200 |
| 21 | -0.8023628 | 4.2446901 |
| 22 | -0.8202477 | 4.2525764 |
| 23 | -0.8381530 | 4.2604790 |
| 24 | -0.7964820 | 4.3753217 |
| 25 | -0.7512935 | 4.4998617 |
| 26 | -0.7019863 | 4.6357611 |
| 27 | -0.6478059 | 4.7850870 |
| 28 | -0.5878027 | 4.9504476 |
| 29 | -0.5207678 | 5.1351897 |
| 30 | -0.4451029 | 5.3436983 |
| 31 | -0.3586669 | 5.5818550 |
| 32 | -0.2585090 | 5.8577802 |
| 33 | -0.1403843 | 6.1831106 |
| 34 | 0.0020728 | 6.5753061 |
| 35 | 0.0354712 | 6.5584107 |
| 36 | 0.0688231 | 6.5416152 |
| 37 | 0.1021342 | 6.5249155 |
| 38 | 0.1354107 | 6.5083087 |
| 39 | 0.1686590 | 6.4917899 |
| 40 | 0.2018853 | 6.4753590 |
| 41 | 0.2350952 | 6.4590092 |
| 42 | 0.2682953 | 6.4427381 |
| 43 | 0.3014912 | 6.4265428 |
| 44 | 0.3346892 | 6.4104210 |

**********
* PHOTO FRAME NUMBER 1 OF 8 *
**********

## FRAME 86

| | YEAR | MONTH | DAY | HOUR | MINUTE | SECOND |
|---|---|---|---|---|---|---|
| GMT | 67 | 2 | 18 | 7 | 32 | 9.499 |

| | | | | | |
|---|---|---|---|---|---|
| LONGITUDE OF NADIR POINT | = | -1.3842735 | DEG | LATITUDE OF NADIR POINT | = 1.8587702 DEG |
| LONG OF CAMERA AXIS INTERSECT | = | -1.6563960 | DEG | LATI OF CAMERA AXIS INTERSECT | = 1.2476288 DEG |
| SPACECRAFT RADIUS | = | 1785.0676117 | KM | SPACECRAFT ALTITUDE | = 46.9776154 KM |
| MEAN ALTITUDE RATE | = | -0.0550780 | KM/SEC | TIME FROM PERIAPSIS | = -106.0488873 SEC |
| HORIZONTAL VELOCITY | = | 1.9150724 | KM/SEC | TRUE ANOMALY | = 353.4670448 DEG |
| SCALE FACTOR (HIGH) | = | 0.0118951 | M/KM | TILT DISTANCE (HIGH) | = 262.8320045 MM |
| SCALE FACTOR (LOW) | = | 0.0015600 | M/KM | TILT DISTANCE (LOW) | = 34.4697709 MM |
| IMAGE MOTION COMPENSATION (V/H) | = | 0.0373589 | RAD/SEC | SWING ANGLE | = 3.3115526 DEG |
| EMISSION ANGLE | = | 23.9788172 | DEG | INCIDENCE ANGLE | = 77.2742386 DEG |
| PHASE ANGLE | = | 69.4486771 | DEG | NORTH DEVIATION ANGLE | = 337.3418045 DEG |
| TILT ANGLE | = | 23.3098636 | DEG | RESOLUTION CONSTANT | = 1.1128147 MTR |
| TILT AZIMUTH | = | 203.9984436 | DEG | SUN AZIMUTH AT PRINCIPAL GND PT | = 91.7924891 DEG |
| SUN ANGLE AT NADIR | = | 77.0222588 | DEG | SUN ARC AT NADIR | = 2336.5005493 KM |
| LONGITUDE DISTANCE TO TARGET | = | -0.1012735 | DEG | LATITUDE DISTANCE TO TARGET | = 0.8257702 DEG |
| LONGITUDE ARC LENGTH TO TARGET | = | -3.0721721 | KM | LATITUDE ARC LENGTH TO TARGET | = 25.0500636 KM |
| FORWARD OVERLAP RATIO | = | 0. | PCT | SIDE OVERLAP RATIO | = 0. PCT |
| TIME BETWEEN PHOTOS | = | 0. | SEC | ALPHA | = 6.6974284 DEG. |

| | X | Y | Z | MAGNITUDE (KM) |
|---|---|---|---|---|
| DIRECTION COSINES TO TARGET | -0.86440370 | 0.07832620 | -0.49666010 | 53.48864031 |
| CAMERA AXIS | -0.90979295 | -0.13899946 | -0.39139581 | 51.28178406 |
| C1 | -0.96734466 | -0.03692152 | -0.25076110 | 48.27737427 |
| C2 | -0.82082648 | -0.15354031 | -0.55015387 | 56.64463806 |
| C3 | -0.82183059 | -0.23643121 | -0.51835777 | 56.78823853 |
| C4 | -0.96834875 | -0.11981242 | -0.21896502 | 48.38108826 |

| | X | Y | Z | X DOT | Y DOT | Z DOT |
|---|---|---|---|---|---|---|
| STATE VECTOR (1950.0) | -563.8801270 | -1584.6160736 | -597.9109497 | 1.7194806 | -0.2446706 | -0.8087392 |

LONG -0.9705 DEG
LATI 1.6671 DEG

LONG -1.3232 DEG
LATI 0.1430 DEG

(1) • 47.45463 KM • (2)

LOW RESOLUTION

29.96768 KM 43.36095 KM

(4) • 48.53917 KM • (3)

LONG -1.8937 DEG
LATI 2.0199 DEG

LONG -2.6704 DEG
LATI 0.6208 DEG

LONG -1.4802 DEG
LATI 1.5098 DEG

LONG -1.7080 DEG
LATI 0.8814 DEG

(1) • 20.27393 KM • (2)

HIGH RESOLUTION

4.29220 KM 5.03765 KM

(4) • 20.32979 KM • (3)

LONG -1.6127 DEG
LATI 1.5596 DEG

LONG -1.8643 DEG
LATI 0.9383 DEG

LOW RESOLUTION 86

| INDEX | LONGITUDE | LATITUDE |
|---|---|---|
| 1 | -0.9704913 | 1.6670750 |
| 2 | -0.9955820 | 1.5605513 |
| 3 | -1.0209357 | 1.4526139 |
| 4 | -1.0468289 | 1.3420920 |
| 5 | -1.0735520 | 1.2277009 |
| 6 | -1.1014397 | 1.1079762 |
| 7 | -1.1308812 | 0.9811951 |
| 8 | -1.1623479 | 0.8452521 |
| 9 | -1.1964271 | 0.6975074 |
| 10 | -1.2338702 | 0.5345434 |
| 11 | -1.2756847 | 0.3517966 |
| 12 | -1.3232330 | 0.1429704 |
| 13 | -1.4499706 | 0.1896692 |
| 14 | -1.5728423 | 0.2345982 |
| 15 | -1.6929511 | 0.2781842 |
| 16 | -1.8113012 | 0.3208148 |
| 17 | -1.9288351 | 0.3628393 |
| 18 | -2.0464749 | 0.4045897 |
| 19 | -2.1651392 | 0.4463896 |
| 20 | -2.2857911 | 0.4885643 |
| 21 | -2.4094482 | 0.5314519 |
| 22 | -2.5372411 | 0.5754153 |
| 23 | -2.6704400 | 0.6208497 |
| 24 | -2.5626220 | 0.8132416 |
| 25 | -2.4686523 | 0.9814008 |
| 26 | -2.3851498 | 1.1312074 |
| 27 | -2.3096762 | 1.2669062 |
| 28 | -2.2404215 | 1.3916715 |
| 29 | -2.1759958 | 1.5079538 |
| 30 | -2.1152993 | 1.6176970 |
| 31 | -2.0574339 | 1.7224960 |
| 32 | -2.0016381 | 1.8236998 |
| 33 | -1.9472596 | 1.9224882 |
| 34 | -1.8936938 | 2.0199379 |
| 35 | -1.8406070 | 1.9855496 |
| 36 | -1.7168500 | 1.9524232 |
| 37 | -1.6326201 | 1.9202539 |
| 38 | -1.5502002 | 1.8887658 |
| 39 | -1.4689278 | 1.8577081 |
| 40 | -1.3881779 | 1.8268442 |
| 41 | -1.3073426 | 1.7959402 |
| 42 | -1.2258140 | 1.7647620 |
| 43 | -1.1429570 | 1.7330666 |
| 44 | -1.0580953 | 1.7006001 |

HIGH RESOLUTION 86

| INDEX | LONGITUDE | LATITUDE |
|---|---|---|
| 1 | -1.4802317 | 1.5097749 |
| 2 | -1.4983830 | 1.4597130 |
| 3 | -1.5168655 | 1.4087410 |
| 4 | -1.5357236 | 1.3567223 |
| 5 | -1.5550155 | 1.3035023 |
| 6 | -1.5747991 | 1.2489223 |
| 7 | -1.5951394 | 1.1928003 |
| 8 | -1.6161047 | 1.1349409 |
| 9 | -1.6377769 | 1.0751307 |
| 10 | -1.6602414 | 1.0131245 |
| 11 | -1.6835972 | 0.9486561 |
| 12 | -1.7079502 | 0.8814197 |
| 13 | -1.7221126 | 0.8866004 |
| 14 | -1.7362716 | 0.8917794 |
| 15 | -1.7504306 | 0.8969541 |
| 16 | -1.7645964 | 0.9021280 |
| 17 | -1.7787622 | 0.9072993 |
| 18 | -1.7929349 | 0.9124706 |
| 19 | -1.8071178 | 0.9176419 |
| 20 | -1.8213109 | 0.9228149 |
| 21 | -1.8355177 | 0.9279888 |
| 22 | -1.8497381 | 0.9331652 |
| 23 | -1.8639757 | 0.9383450 |
| 24 | -1.8370613 | 1.0048395 |
| 25 | -1.8112603 | 1.0685933 |
| 26 | -1.7864496 | 1.1299096 |
| 27 | -1.7625235 | 1.1890531 |
| 28 | -1.7393828 | 1.2462628 |
| 29 | -1.7169422 | 1.3017538 |
| 30 | -1.6951197 | 1.3557191 |
| 31 | -1.6738471 | 1.4083355 |
| 32 | -1.6530594 | 1.4597642 |
| 33 | -1.6326918 | 1.5101556 |
| 34 | -1.6126896 | 1.5596464 |
| 35 | -1.6006104 | 1.5551026 |
| 36 | -1.5885449 | 1.5505631 |
| 37 | -1.5764862 | 1.5460261 |
| 38 | -1.5644411 | 1.5414917 |
| 39 | -1.5524029 | 1.5369590 |
| 40 | -1.5403681 | 1.5324289 |
| 41 | -1.5283402 | 1.5278988 |
| 42 | -1.5163122 | 1.5233704 |
| 43 | -1.5042877 | 1.5188394 |
| 44 | -1.4922597 | 1.5143084 |

**********
* PHOTO FRAME NUMBER 2 OF 8 *
**********

## FRAME 87

| | YEAR | MONTH | DAY | HOUR | MINUTE | SECOND |
|---|---|---|---|---|---|---|
| GMT | 67 | 2 | 18 | 7 | 32 | 11.909 |

| | | | | | |
|---|---|---|---|---|---|
| LONGITUDE OF NADIR POINT | = | -1.2468376 | DEG | LATITUDE OF NADIR POINT | = 1.8060591 DEG |
| LONG OF CAMERA AXIS INTERSECT | = | -1.5145022 | DEG | LATI OF CAMERA AXIS INTERSECT | = 1.1952541 DEG |
| SPACECRAFT RADIUS | = | 1784.9369507 | KM | SPACECRAFT ALTITUDE | = 46.8469543 KM |
| MEAN ALTITUDE RATE | = | -0.0538421 | KM/SEC | TIME FROM PERIAPSIS | = -103.6542044 SEC |
| HORIZONTAL VELOCITY | = | 1.9152123 | KM/SEC | TRUE ANOMALY | = 353.6142502 DEG |
| SCALE FACTOR (HIGH) | = | 0.0119293 | M/KM | TILT DISTANCE (HIGH) | = 262.7382812 MM |
| SCALE FACTOR (LOW) | = | 0.0015645 | M/KM | TILT DISTANCE (LOW) | = 34.4574795 MM |
| IMAGE MOTION COMPENSATION (V/H) | = | 0.0374671 | RAD/SEC | SWING ANGLE | = 2.9393505 DEG |
| EMISSION ANGLE | = | 23.9692848 | DEG | INCIDENCE ANGLE | = 77.1304779 DEG |
| PHASE ANGLE | = | 69.4486780 | DEG | NORTH DEVIATION ANGLE | = 337.3286171 DEG |
| TILT ANGLE | = | 23.3024383 | DEG | RESOLUTION CONSTANT | = 1.1096476 MTR |
| TILT AZIMUTH | = | 203.6610184 | DEG | SUN AZIMUTH AT PRINCIPAL GND PT | = 91.7846375 DEG |
| SUN ANGLE AT NADIR | = | 76.8828526 | DEG | SUN ARC AT NADIR | = 2332.2715759 KM |
| LONGITUDE DISTANCE TO TARGET | = | 0.0361624 | DEG | LATITUDE DISTANCE TO TARGET | = 0.7730591 DEG |
| LONGITUDE ARC LENGTH TO TARGET | = | 1.0970004 | KM | LATITUDE ARC LENGTH TO TARGET | = 23.4510513 KM |
| FORWARD OVERLAP RATIO | = | 0.8743765 | PCT | SIDE OVERLAP RATIO | = 0. PCT |
| TIME BETWEEN PHOTOS | = | 2.4001479 | SEC | ALPHA | = 6.5368325 DEG. |

| | X | Y | Z | MAGNITUDE (KM) |
|---|---|---|---|---|
| DIRECTION COSINES TO TARGET | -0.88036597 | -0.00172511 | -0.47429188 | 52.54179907 |
| CAMERA AXIS | -0.90979380 | -0.13899410 | -0.39109573 | 51.13583374 |
| C1 | -0.96734489 | -0.03691582 | -0.25076101 | 48.14605713 |
| C2 | -0.82082743 | -0.15353546 | -0.55015380 | 56.49090576 |
| C3 | -0.82183202 | -0.23642636 | -0.51835770 | 56.61796570 |
| C4 | -0.96834948 | -0.11980672 | -0.21896493 | 48.23782349 |

| | X | Y | Z | X DOT | Y DOT | Z DOT |
|---|---|---|---|---|---|---|
| STATE VECTOR (1950.0) | -559.7537155 | -1585.1990967 | 599.8496170 | 1.7206433 | -0.2413918 | -0.8074986 |

LONG -0.8302 DEG
LATI 1.6133 DEG

LONG -1.1823 DEG
LATI 0.0917 DEG

(1) * 47.37694 KM * (2)

LOW RESOLUTION

29.88037 KM 43.22899 KM

(4) * 48.33632 KM * (3)

LONG -1.7506 DEG
LATI 1.9653 DEG

LONG -2.5240 DEG
LATI 0.5719 DEG

LONG -1.3388 DEG
LATI 1.4566 DEG

LONG -1.5660 DEG
LATI 0.8300 DEG

(1) * 20.21898 KM * (2)

HIGH RESOLUTION

4.27974 KM 5.02283 KM

(4) * 20.26840 KM * (3)

LONG -1.4739 DEG
LATI 1.5064 DEG

LONG -1.7214 DEG
LATI 0.8870 DEG

LOW RESOLUTION 87

| INDEX | LONGITUDE | LATITUDE |
|---|---|---|
| 1 | -0.8301924 | 1.6132932 |
| 2 | -0.8552285 | 1.5069788 |
| 3 | -0.8805309 | 1.3992462 |
| 4 | -0.9063661 | 1.2889275 |
| 5 | -0.9330380 | 1.1747421 |
| 6 | -0.9608676 | 1.0552258 |
| 7 | -0.9902511 | 0.9286581 |
| 8 | -1.0216597 | 0.7929371 |
| 9 | -1.0556740 | 0.6454230 |
| 10 | -1.0930488 | 0.4827014 |
| 11 | -1.1347881 | 0.3002133 |
| 12 | -1.1822545 | 0.0916628 |
| 13 | -1.2387633 | 0.1386844 |
| 14 | -1.4313617 | 0.1839054 |
| 15 | -1.5511462 | 0.2277578 |
| 16 | -1.6691206 | 0.2706317 |
| 17 | -1.7862345 | 0.3128807 |
| 18 | -1.9033995 | 0.3548394 |
| 19 | -2.0215379 | 0.3968331 |
| 20 | -2.1415955 | 0.4391880 |
| 21 | -2.2645867 | 0.4822429 |
| 22 | -2.3916283 | 0.5263608 |
| 23 | -2.5239803 | 0.5719378 |
| 24 | -2.4166916 | 0.7634521 |
| 25 | -2.3231693 | 0.9308694 |
| 26 | -2.2400459 | 1.0800322 |
| 27 | -2.1649069 | 1.2151615 |
| 28 | -2.0959528 | 1.3394163 |
| 29 | -2.0318036 | 1.4552315 |
| 30 | -1.9713599 | 1.5645402 |
| 31 | -1.9137268 | 1.6689319 |
| 32 | -1.8581564 | 1.7697472 |
| 33 | -1.8039861 | 1.8681643 |
| 34 | -1.7506287 | 1.9652520 |
| 35 | -1.6609517 | 1.9310046 |
| 36 | -1.5745601 | 1.8980020 |
| 37 | -1.4906614 | 1.8659436 |
| 38 | -1.4085352 | 1.8345546 |
| 39 | -1.3275292 | 1.8035866 |
| 40 | -1.2470184 | 1.7728003 |
| 41 | -1.1664016 | 1.7419654 |
| 42 | -1.0850643 | 1.7108479 |
| 43 | -1.0023780 | 1.6792071 |
| 44 | -0.9176700 | 1.6467833 |

HIGH RESOLUTION 87

| INDEX | LONGITUDE | LATITUDE |
|---|---|---|
| 1 | -1.3388434 | 1.4565984 |
| 2 | -1.3569502 | 1.4066732 |
| 3 | -1.3753815 | 1.3558412 |
| 4 | -1.3941918 | 1.3039642 |
| 5 | -1.4134359 | 1.2508902 |
| 6 | -1.4331683 | 1.1964579 |
| 7 | -1.4534540 | 1.1404887 |
| 8 | -1.4743680 | 1.0827882 |
| 9 | -1.4959822 | 1.0231401 |
| 10 | -1.5183886 | 0.9613039 |
| 11 | -1.5416829 | 0.8970104 |
| 12 | -1.5659711 | 0.8299576 |
| 13 | -1.5800857 | 0.8351520 |
| 14 | -1.5941969 | 0.8403421 |
| 15 | -1.6083080 | 0.8455287 |
| 16 | -1.6224192 | 0.8507129 |
| 17 | -1.6365372 | 0.8558970 |
| 18 | -1.6506586 | 0.8610785 |
| 19 | -1.6647903 | 0.8662618 |
| 20 | -1.6789288 | 0.8714442 |
| 21 | -1.6930809 | 0.8766283 |
| 22 | -1.7072467 | 0.8818150 |
| 23 | -1.7214296 | 0.8870042 |
| 24 | -1.6945938 | 0.9532938 |
| 25 | -1.6688713 | 1.0168529 |
| 26 | -1.6441358 | 1.0779806 |
| 27 | -1.6202779 | 1.1369430 |
| 28 | -1.5972056 | 1.1939794 |
| 29 | -1.5748299 | 1.2493022 |
| 30 | -1.5530723 | 1.3031044 |
| 31 | -1.5318611 | 1.3555620 |
| 32 | -1.5111315 | 1.4068362 |
| 33 | -1.4908219 | 1.4570748 |
| 34 | -1.4708778 | 1.5064161 |
| 35 | -1.4588396 | 1.5018783 |
| 36 | -1.4468150 | 1.4973448 |
| 37 | -1.4347973 | 1.4928138 |
| 38 | -1.4227899 | 1.4882845 |
| 39 | -1.4107892 | 1.4837570 |
| 40 | -1.3987954 | 1.4792320 |
| 41 | -1.3868050 | 1.4747070 |
| 42 | -1.3748146 | 1.4701811 |
| 43 | -1.3628276 | 1.4656553 |
| 44 | -1.3508372 | 1.4611277 |

**********
* PHOTO FRAME NUMBER 3 OF 8 *
**********

## FRAME 88

| | YEAR | MONTH | DAY | HOUR | MINUTE | SECOND |
|---|---|---|---|---|---|---|
| GMT | 67 | 2 | 18 | 7 | 32 | 14.199 |

| | | | | | |
|---|---|---|---|---|---|
| LONGITUDE OF NADIR POINT | = | -1.1150017 | DEG | LATITUDE OF NADIR POINT | = 1.7554824 DEG |
| LONG OF CAMERA AXIS INTERSECT | = | -1.3784312 | DEG | LATI OF CAMERA AXIS INTERSECT | = 1.1449668 DEG |
| SPACECRAFT RADIUS | = | 1784.8144226 | KM | SPACECRAFT ALTITUDE | = 46.7244263 KM |
| MEAN ALTITUDE RATE | = | -0.0526562 | KM/SEC | TIME FROM PERIAPSIS | = -101.3573551 SEC |
| HORIZONTAL VELOCITY | = | 1.9153434 | KM/SEC | TRUE ANOMALY | = 353.7554665 DEG |
| SCALE FACTOR (HIGH) | = | 0.0119613 | M/KM | TILT DISTANCE (HIGH) | = 262.6588898 MM |
| SCALE FACTOR (LOW) | = | 0.0015686 | M/KM | TILT DISTANCE (LOW) | = 34.4470673 MM |
| IMAGE MOTION COMPENSATION (V/H) | = | 0.0375687 | RAD/SEC | SWING ANGLE | = 2.5821034 DEG |
| EMISSION ANGLE | = | 23.9610455 | DEG | INCIDENCE ANGLE | = 76.9926147 DEG |
| PHASE ANGLE | = | 69.4486780 | DEG | NORTH DEVIATION ANGLE | = 337.3162155 DEG |
| TILT ANGLE | = | 23.2961481 | DEG | RESOLUTION CONSTANT | = 1.1066841 MTR |
| TILT AZIMUTH | = | 203.3370056 | DEG | SUN AZIMUTH AT PRINCIPAL GND PT | = 91.7768478 DEG |
| SUN ANGLE AT NADIR | = | 76.7491302 | DEG | SUN ARC AT NADIR | = 2328.2150574 KM |
| LONGITUDE DISTANCE TO TARGET | = | 0.1679983 | DEG | LATITUDE DISTANCE TO TARGET | = 0.7224824 DEG |
| LONGITUDE ARC LENGTH TO TARGET | = | 5.0962954 | KM | LATITUDE ARC LENGTH TO TARGET | = 21.9167871 KM |
| FORWARD OVERLAP RATIO | = | 4.6602723 | PCT | SIDE OVERLAP RATIO | = 0. PCT |
| TIME BETWEEN PHOTOS | = | 2.2997260 | SEC | ALPHA | = 6.3827347 DEG. |

| | X | Y | Z | MAGNITUDE (KM) |
|---|---|---|---|---|
| DIRECTION COSINES TO TARGET | -0.88990303 | -0.08071107 | -0.44895247 | 51.99115849 |
| CAMERA AXIS | -0.90979461 | -0.13898897 | -0.39109567 | 50.99926758 |
| C1 | -0.96734513 | -0.03691038 | -0.25076094 | 48.02325439 |
| C2 | -0.82082833 | -0.15353083 | -0.55015374 | 56.34718323 |
| C3 | -0.82183339 | -0.23642173 | -0.51835766 | 56.45846558 |
| C4 | -0.96835016 | -0.11980128 | -0.21896487 | 48.10363770 |

| | X | Y | Z | X DOT | Y DOT | Z DOT |
|---|---|---|---|---|---|---|
| STATE VECTOR (1950.0) | -555.7932205 | -1585.7509155 | -601.7063065 | 1.7217506 | -0.2382450 | -0.8063047 |

LONG -0.6956 DEG
LATI 1.5617 DEG

(1) * 47.30542 KM

LONG -1.0470 DEG
LATI 0.0423 DEG

(2) *

LOW RESOLUTION

29.79888 KM

43.10613 KM

(4) * 48.14557 KM

LONG -1.6135 DEG
LATI 1.9128 DEG

(3) *

LONG -2.3836 DEG
LATI 0.5249 DEG

LONG -1.2032 DEG
LATI 1.4056 DEG

(1) * 20.16761 KM

LONG -1.4298 DEG
LATI 0.7805 DEG

(2) *

HIGH RESOLUTION

4.26810 KM

5.00930 KM

(4) * 20.21089 KM

LONG -1.3349 DEG
LATI 1.4553 DEG

(3) *

LONG -1.5847 DEG
LATI 0.8377 DEG

LOW RESOLUTION 88

| INDEX | LONGITUDE | LATITUDE |
|---|---|---|
| 1 | -0.6956001 | 1.5616860 |
| 2 | -0.7205849 | 1.4555637 |
| 3 | -0.7458362 | 1.3480206 |
| 4 | -0.7716235 | 1.2378915 |
| 5 | -0.7982408 | 1.1238948 |
| 6 | -0.8260226 | 1.0045722 |
| 7 | -0.8553514 | 0.8782009 |
| 8 | -0.8867020 | 0.7426832 |
| 9 | -0.9206583 | 0.5953807 |
| 10 | -0.9579682 | 0.4328812 |
| 11 | -0.9996357 | 0.2506278 |
| 12 | -1.0470270 | 0.0423301 |
| 13 | -1.1733309 | 0.0896633 |
| 14 | -1.2956698 | 0.1351643 |
| 15 | -1.4151537 | 0.1792745 |
| 16 | -1.5327798 | 0.2223850 |
| 17 | -1.6494975 | 0.2648508 |
| 18 | -1.7662186 | 0.3070102 |
| 19 | -1.8838584 | 0.3491909 |
| 20 | -2.0033559 | 0.3917199 |
| 21 | -2.1257222 | 0.4349353 |
| 22 | -2.2520602 | 0.4792009 |
| 23 | -2.3836130 | 0.5249137 |
| 24 | -2.2768230 | 0.7156023 |
| 25 | -2.1837139 | 0.8823221 |
| 26 | -2.1009525 | 1.0308796 |
| 27 | -2.0261312 | 1.1654753 |
| 28 | -1.9574605 | 1.2892486 |
| 29 | -1.8935675 | 1.4046233 |
| 30 | -1.8333593 | 1.5135255 |
| 31 | -1.7759482 | 1.6175348 |
| 32 | -1.7205861 | 1.7179863 |
| 33 | -1.6666208 | 1.8160525 |
| 34 | -1.6134546 | 1.9127996 |
| 35 | -1.5241635 | 1.8786845 |
| 36 | -1.4381168 | 1.8457997 |
| 37 | -1.3545221 | 1.8138446 |
| 38 | -1.2726725 | 1.7825496 |
| 39 | -1.1919158 | 1.7516634 |
| 40 | -1.1116303 | 1.7209506 |
| 41 | -1.0312151 | 1.6901815 |
| 42 | -0.9500588 | 1.6591212 |
| 43 | -0.8675331 | 1.6275282 |
| 44 | -0.7829616 | 1.5951446 |

HIGH RESOLUTION 88

| INDEX | LONGITUDE | LATITUDE |
|---|---|---|
| 1 | -1.2032402 | 1.4055598 |
| 2 | -1.2213027 | 1.3557635 |
| 3 | -1.2396896 | 1.3050613 |
| 4 | -1.2584555 | 1.2533166 |
| 5 | -1.2776517 | 1.2003784 |
| 6 | -1.2973364 | 1.1460844 |
| 7 | -1.3175742 | 1.0902587 |
| 8 | -1.3384370 | 1.0327049 |
| 9 | -1.3599999 | 0.9732106 |
| 10 | -1.3823517 | 0.9115323 |
| 11 | -1.4055880 | 0.8474036 |
| 12 | -1.4298181 | 0.7805224 |
| 13 | -1.4438849 | 0.7857270 |
| 14 | -1.4579517 | 0.7909291 |
| 15 | -1.4720150 | 0.7961277 |
| 16 | -1.4860818 | 0.8013229 |
| 17 | -1.5001520 | 0.8065173 |
| 18 | -1.5142256 | 0.8117108 |
| 19 | -1.5283060 | 0.8169034 |
| 20 | -1.5423967 | 0.8220969 |
| 21 | -1.5564976 | 0.8272913 |
| 22 | -1.5706122 | 0.8324873 |
| 23 | -1.5847439 | 0.8376860 |
| 24 | -1.5579832 | 0.9037843 |
| 25 | -1.5323324 | 0.9671607 |
| 26 | -1.5076652 | 1.0281125 |
| 27 | -1.4838756 | 1.0869059 |
| 28 | -1.4608681 | 1.1437792 |
| 29 | -1.4385505 | 1.1989432 |
| 30 | -1.4168544 | 1.2525935 |
| 31 | -1.3956979 | 1.3049025 |
| 32 | -1.3750263 | 1.3560316 |
| 33 | -1.3547714 | 1.4061276 |
| 34 | -1.3348819 | 1.4553306 |
| 35 | -1.3228813 | 1.4507979 |
| 36 | -1.3108909 | 1.4462686 |
| 37 | -1.2989141 | 1.4417428 |
| 38 | -1.2869442 | 1.4372186 |
| 39 | -1.2749811 | 1.4326962 |
| 40 | -1.2630215 | 1.4281746 |
| 41 | -1.2510652 | 1.4236530 |
| 42 | -1.2391090 | 1.4191323 |
| 43 | -1.2271562 | 1.4146090 |
| 44 | -1.2151999 | 1.4100857 |

**********
* PHOTO FRAME NUMBER 4 OF 8 *
**********

## FRAME 89

| | YEAR | MONTH | DAY | HOUR | MINUTE | SECOND |
|---|---|---|---|---|---|---|
| GMT | 67 | 2 | 18 | 7 | 32 | 16.400 |

| | | | | | |
|---|---|---|---|---|---|
| LONGITUDE OF NADIR POINT | = | -0.9089453 | DEG | LATITUDE OF NADIR POINT | = 1.7071127 DEG |
| LONG OF CAMERA AXIS INTERSECT | = | -1.2483605 | DEG | LATI OF CAMERA AXIS INTERSECT | = 1.0968396 DEG |
| SPACECRAFT RADIUS | = | 1784.6998291 | KM | SPACECRAFT ALTITUDE | = 46.6098328 KM |
| MEAN ALTITUDE RATE | = | -0.0515219 | KM/SEC | TIME FROM PERIAPSIS | = -99.1612768 SEC |
| HORIZONTAL VELOCITY | = | 1.0154662 | KM/SEC | TRUE ANOMALY | = 353.8905029 DEG |
| SCALE FACTOR (HIGH) | = | 0.0119909 | M/KM | TILT DISTANCE (HIGH) | = 262.5924873 MM |
| SCALE FACTOR (LOW) | = | 0.0015726 | M/KM | TILT DISTANCE (LOW) | = 34.4383593 MM |
| IMAGE MOTION COMPENSATION (V/H) | = | 0.0376640 | RAD/SEC | SWING ANGLE | = 2.2403331 DEG |
| EMISSION ANGLE | = | 23.9539776 | DEG | INCIDENCE ANGLE | = 76.8608294 DEG |
| PHASE ANGLE | = | 69.4486780 | DEG | NORTH DEVIATION ANGLE | = 337.3045731 DEG |
| TILT ANGLE | = | 23.2908864 | DEG | RESOLUTION CONSTANT | = 1.1039180 MTR |
| TILT AZIMUTH | = | 203.0269108 | DEG | SUN AZIMUTH AT PRINCIPAL GND PT | = 91.7691650 DEG |
| SUN ANGLE AT NADIR | = | 76.6212692 | DEG | SUN ARC AT NADIR | = 2324.3363342 KM |
| LONGITUDE DISTANCE TO TARGET | = | 0.2940550 | DEG | LATITUDE DISTANCE TO TARGET | = 0.6741127 DEG |
| LONGITUDE ARC LENGTH TO TARGET | = | 8.9202740 | KM | LATITUDE ARC LENGTH TO TARGET | = 20.4494731 KM |
| FORWARD OVERLAP RATIO | = | 8.6133335 | PCT | SIDE OVERLAP RATIO | = 0. PCT |
| TIME BETWEEN PHOTOS | = | 2.2002697 | SEC | ALPHA | = 6.2353477 DEG. |

| | X | Y | Z | MAGNITUDE (KM) |
|---|---|---|---|---|
| DIRECTION COSINES TO TARGET | -0.89319860 | -0.15677952 | -0.42144565 | 51.80274725 |
| CAMERA AXIS | -0.90979542 | -0.13898398 | -0.39109558 | 50.87179565 |
| C1 | -0.96734535 | -0.03690508 | -0.25076084 | 47.90875244 |
| C2 | -0.82082923 | -0.15352632 | -0.55015366 | 56.21318054 |
| C3 | -0.82183473 | -0.23641721 | -0.51835757 | 56.30947876 |
| C4 | -0.96835084 | -0.11979597 | -0.21896477 | 47.97830200 |

| | X | Y | Z | X DOT | Y DOT | Z DOT |
|---|---|---|---|---|---|---|
| STATE VECTOR (1950.0) | -552.0042191 | -1586.2717438 | -603.4789124 | 1.7228023 | -0.2352349 | -0.8051595 |

LONG -0.5669 DEG
LATI 1.5123 DEG

LONG -0.9177 DEG
LATI -0.0050 DEG

(1) * 47.23985 KM * (2)

LONG -1.0736 DEG
LATI 1.3567 DEG

LONG -1.2997 DEG
LATI 0.7332 DEG

(1) * 20.11972 KM * (2)

LOW RESOLUTION

29.72300 KM 42.99206 KM

HIGH RESOLUTION

4.25727 KM 4.99613 KM

(4) * 47.96667 KM * (3)

(4) * 20.15717 KM * (3)

LONG -1.4824 DEG
LATI 1.8627 DEG

LONG -2.2495 DEG
LATI 0.4799 DEG

LONG -1.2049 DEG
LATI 1.4065 DEG

LONG -1.4541 DEG
LATI 0.7905 DEG

LOW RESOLUTION 89

| INDEX | LONGITUDE | LATITUDE |
|---|---|---|
| 1 | -0.5668989 | 1.5123234 |
| 2 | -0.5918393 | 1.4063795 |
| 3 | -0.6170427 | 1.2990115 |
| 4 | -0.6427857 | 1.1890565 |
| 5 | -0.6693551 | 1.0752348 |
| 6 | -0.6970857 | 0.9560882 |
| 7 | -0.7263667 | 0.8298979 |
| 8 | -0.7576626 | 0.6945653 |
| 9 | -0.7915643 | 0.5474576 |
| 10 | -0.8288161 | 0.3851612 |
| 11 | -0.8704188 | 0.2031230 |
| 12 | -0.9177383 | -0.0049508 |
| 13 | -1.0438510 | 0.0426853 |
| 14 | -1.1659542 | 0.0884586 |
| 15 | -1.2851547 | 0.1328164 |
| 16 | -1.4024598 | 0.1761514 |
| 17 | -1.5188086 | 0.2188273 |
| 18 | -1.6351131 | 0.2611813 |
| 19 | -1.7522850 | 0.3035404 |
| 20 | -1.8712601 | 0.3462351 |
| 21 | -1.9930389 | 0.3896042 |
| 22 | -2.1187110 | 0.4340124 |
| 23 | -2.2495159 | 0.4798575 |
| 24 | -2.1431904 | 0.6697700 |
| 25 | -2.0504774 | 0.8358350 |
| 26 | -1.9680507 | 0.9838256 |
| 27 | -1.8935265 | 1.1179192 |
| 28 | -1.8251187 | 1.2412417 |
| 29 | -1.7614682 | 1.3562040 |
| 30 | -1.7014821 | 1.4647246 |
| 31 | -1.6442792 | 1.5683736 |
| 32 | -1.5891152 | 1.6684854 |
| 33 | -1.5353343 | 1.7662237 |
| 34 | -1.4823525 | 1.8626523 |
| 35 | -1.3934235 | 1.8286602 |
| 36 | -1.3076977 | 1.7958864 |
| 37 | -1.2243899 | 1.7640287 |
| 38 | -1.1427999 | 1.7328198 |
| 39 | -1.0622754 | 1.7020105 |
| 40 | -0.9822017 | 1.6713660 |
| 41 | -0.9019709 | 1.6406575 |
| 42 | -0.8209819 | 1.6096493 |
| 43 | -0.7386030 | 1.5781007 |
| 44 | -0.6541545 | 1.5457546 |

HIGH RESOLUTION 89

| INDEX | LONGITUDE | LATITUDE |
|---|---|---|
| 1 | -1.0736067 | 1.3567317 |
| 2 | -1.0916281 | 1.3070540 |
| 3 | -1.1099774 | 1.2564739 |
| 4 | -1.1286990 | 1.2048530 |
| 5 | -1.1478508 | 1.1520412 |
| 6 | -1.1674910 | 1.0978778 |
| 7 | -1.1876845 | 1.0421861 |
| 8 | -1.2084961 | 0.9847698 |
| 9 | -1.2300112 | 0.9254155 |
| 10 | -1.2523118 | 0.8638849 |
| 11 | -1.2754934 | 0.7999082 |
| 12 | -1.2996689 | 0.7331875 |
| 13 | -1.3136947 | 0.7384041 |
| 14 | -1.3277204 | 0.7436180 |
| 15 | -1.3417428 | 0.7488269 |
| 16 | -1.3557618 | 0.7540332 |
| 17 | -1.3697876 | 0.7592387 |
| 18 | -1.3838168 | 0.7644416 |
| 19 | -1.3978528 | 0.7696445 |
| 20 | -1.4118957 | 0.7748491 |
| 21 | -1.4259488 | 0.7800528 |
| 22 | -1.4400156 | 0.7852583 |
| 23 | -1.4540994 | 0.7904663 |
| 24 | -1.4274105 | 0.8563853 |
| 25 | -1.4018246 | 0.9195893 |
| 26 | -1.3772222 | 0.9803789 |
| 27 | -1.3534942 | 1.0390143 |
| 28 | -1.3305447 | 1.0957356 |
| 29 | -1.3082886 | 1.1507528 |
| 30 | -1.2866437 | 1.2042588 |
| 31 | -1.2655452 | 1.2564295 |
| 32 | -1.2449215 | 1.3074228 |
| 33 | -1.2247212 | 1.3573865 |
| 34 | -1.2048795 | 1.4064589 |
| 35 | -1.1929164 | 1.4019313 |
| 36 | -1.1809636 | 1.3974072 |
| 37 | -1.1690176 | 1.3928847 |
| 38 | -1.1570818 | 1.3883648 |
| 39 | -1.1451529 | 1.3838458 |
| 40 | -1.1332274 | 1.3793294 |
| 41 | -1.1213053 | 1.3748112 |
| 42 | -1.1093832 | 1.3702930 |
| 43 | -1.0974611 | 1.3657748 |
| 44 | -1.0855356 | 1.3612541 |

**********
* PHOTO FRAME NUMBER 5 OF 8 *
**********

## FRAME 90

| | YEAR | MONTH | DAY | HOUR | MINUTE | SECOND |
|---|---|---|---|---|---|---|
| GMT | 67 | 2 | 18 | 7 | 32 | 16.900 |

| | | | | | | |
|---|---|---|---|---|---|---|
| LONGITUDE OF NADIR POINT | = | -0.8456879 | DEG | LATITUDE OF NADIR POINT | = | 1.6521280 DEG |
| LONG OF CAMERA AXIS INTERSECT | = | -1.1035698 | DEG | LATI OF CAMERA AXIS INTERSECT | = | 1.0420548 DEG |
| SPACECRAFT RADIUS | = | 1784.5726471 | KM | SPACECRAFT ALTITUDE | = | 46.4826508 KM |
| MEAN ALTITUDE RATE | = | -0.0502323 | KM/SEC | TIME FROM PERIAPSIS | = | -96.6657362 SEC |
| HORIZONTAL VELOCITY | = | 1.9156022 | KM/SEC | TRUE ANOMALY | = | 354.0439720 DEG |
| SCALE FACTOR (HIGH) | = | 0.0120243 | M/KM | TILT DISTANCE (HIGH) | = | 262.5283127 MM |
| SCALE FACTOR (LOW) | = | 0.0015770 | M/KM | TILT DISTANCE (LOW) | = | 34.4299431 MM |
| IMAGE MOTION COMPENSATION (V/H) | = | 0.0377698 | RAD/SEC | SWING ANGLE | = | 1.8517464 DEG |
| EMISSION ANGLE | = | 23.9469192 | DEG | INCIDENCE ANGLE | = | 76.7111034 DEG |
| PHASE ANGLE | = | 69.4486780 | DEG | NORTH DEVIATION ANGLE | = | 337.2916069 DEG |
| TILT ANGLE | = | 23.2858009 | DEG | RESOLUTION CONSTANT | = | 1.1038551 MIR |
| TILT AZIMUTH | = | 202.6741886 | DEG | SUN AZIMUTH AT PRINCIPAL GND PT | = | 91.7601528 DEG |
| SUN ANGLE AT NADIR | = | 76.4759626 | DEG | SUN ARC AT NADIR | = | 2319.9284363 KM |
| LONGITUDE DISTANCE TO TARGET | = | 3.4373121 | DEG | LATITUDE DISTANCE TO TARGET | = | 3.6191280 DEG |
| LONGITUDE ARC LENGTH TO TARGET | = | 13.2660358 | KM | LATITUDE ARC LENGTH TO TARGET | = | 18.7814901 KM |
| FORWARD OVERLAP RATIO | = | -4.1471854 | PCT | SIDE OVERLAP RATIO | = | 0. PCT |
| TIME BETWEEN PHOTOS | = | 2.4399261 | SEC | ALPHA | = | 6.0677965 DEG. |

| | X | Y | Z | MAGNITUDE (KM) |
|---|---|---|---|---|
| DIRECTION COSINES TO TARGET | -0.88980196 | -0.24199953 | -0.38689624 | 51.99435472 |
| CAMERA AXIS | -0.89979630 | -0.13897844 | -0.39109549 | 50.73065186 |
| C1 | -0.96734560 | -0.03689919 | -0.25076074 | 47.78207397 |
| C2 | -0.82083023 | -0.15352132 | -0.55015358 | 56.06498718 |
| C3 | -0.82183623 | -0.23641220 | -0.51835749 | 56.14431763 |
| C4 | -0.96835159 | -0.11979008 | -0.21896467 | 47.83940125 |

| | X | Y | Z | X DOT | Y DOT | Z DOT |
|---|---|---|---|---|---|---|
| STATE VECTOR (1950.0) | -547.6957245 | -1586.8555603 | -605.4901810 | 1.7239888 | -0.2318123 | -0.8038538 |

LONG -0.4206 DEG
LATI 1.4562 DEG

LONG -0.7708 DEG
LATI -0.0588 DEG

(1) * 47.16864 KM * (2)

LOW RESOLUTION

29.63919 KM 42.86646 KM

(4) * 47.76747 KM * (3)

LONG -1.3334 DEG
LATI 1.8057 DEG

LONG -2.0972 DEG
LATI 0.4285 DEG

LONG -0.9263 DEG
LATI 1.3012 DEG

LONG -1.1518 DEG
LATI 0.6793 DEG

(1) * 20.36677 KM * (2)

HIGH RESOLUTION

4.24530 KM 4.98192 KM

(4) * 20.09762 KM * (3)

LONG -1.0572 DEG
LATI 1.3509 DEG

LONG -1.3057 DEG
LATI 0.7367 DEG

LOW RESOLUTION 90

| INDEX | LONGITUDE | LATITUDE |
|---|---|---|
| 1 | -0.4206201 | 1.4562065 |
| 2 | -0.4455059 | 1.3504573 |
| 3 | -0.4706581 | 1.2432814 |
| 4 | -0.4963464 | 1.1335151 |
| 5 | -0.5228680 | 1.0198838 |
| 6 | -0.5505440 | 0.9009310 |
| 7 | -0.5797703 | 0.7749370 |
| 8 | -0.6110082 | 0.6398069 |
| 9 | -0.6448484 | 0.4929074 |
| 10 | -0.6820354 | 0.3308304 |
| 11 | -0.7235663 | 0.1490219 |
| 12 | -0.7708073 | -0.0588088 |
| 13 | -0.8967150 | -0.0108293 |
| 14 | -1.0185588 | 0.0352574 |
| 15 | -1.1374485 | 0.0798978 |
| 16 | -1.2543915 | 0.1234932 |
| 17 | -1.3703306 | 0.1664082 |
| 18 | -1.4861740 | 0.2089816 |
| 19 | -1.6028268 | 0.2515456 |
| 20 | -1.7212179 | 0.2944298 |
| 21 | -1.8423411 | 0.3379757 |
| 22 | -1.9672754 | 0.3825461 |
| 23 | -2.0972403 | 0.4285380 |
| 24 | -1.9914372 | 0.6175891 |
| 25 | -1.8991580 | 0.7829249 |
| 26 | -1.8171103 | 0.9302828 |
| 27 | -1.7429140 | 1.0638190 |
| 28 | -1.6748067 | 1.1866395 |
| 29 | -1.6114226 | 1.3011433 |
| 30 | -1.5516858 | 1.4092379 |
| 31 | -1.4947152 | 1.5124882 |
| 32 | -1.4397663 | 1.6122200 |
| 33 | -1.3861971 | 1.7095938 |
| 34 | -1.3334202 | 1.8056672 |
| 35 | -1.2448873 | 1.7718142 |
| 36 | -1.1595202 | 1.7391616 |
| 37 | -1.0765334 | 1.7074124 |
| 38 | -0.9952303 | 1.6762992 |
| 39 | -0.9149653 | 1.6455761 |
| 40 | -0.8351204 | 1.6150084 |
| 41 | -0.7550979 | 1.5843640 |
| 42 | -0.6742933 | 1.5534129 |
| 43 | -0.5920715 | 1.5219138 |
| 44 | -0.5077631 | 1.4896062 |

HIGH RESOLUTION 90

| INDEX | LONGITUDE | LATITUDE |
|---|---|---|
| 1 | -0.9263034 | 1.3012091 |
| 2 | -0.9442805 | 1.2516629 |
| 3 | -0.9625820 | 1.2012168 |
| 4 | -0.9812557 | 1.1497325 |
| 5 | -1.0003597 | 1.0970615 |
| 6 | -1.0199521 | 1.0430416 |
| 7 | -1.0400944 | 0.9874968 |
| 8 | -1.0608547 | 0.9302325 |
| 9 | -1.0823152 | 0.8710361 |
| 10 | -1.1045577 | 0.8096668 |
| 11 | -1.1276813 | 0.7458609 |
| 12 | -1.1517953 | 0.6793152 |
| 13 | -1.1657767 | 0.6845463 |
| 14 | -1.1797512 | 0.6897723 |
| 15 | -1.1937258 | 0.6949948 |
| 16 | -1.2077004 | 0.7002156 |
| 17 | -1.2216749 | 0.7054322 |
| 18 | -1.2356529 | 0.7106487 |
| 19 | -1.2496377 | 0.7158636 |
| 20 | -1.2636294 | 0.7210776 |
| 21 | -1.2776313 | 0.7262933 |
| 22 | -1.2916468 | 0.7315098 |
| 23 | -1.3056726 | 0.7367290 |
| 24 | -1.2790622 | 0.8024490 |
| 25 | -1.2535514 | 0.8654644 |
| 26 | -1.2290208 | 0.9260712 |
| 27 | -1.2053610 | 0.9845325 |
| 28 | -1.1824765 | 1.0410839 |
| 29 | -1.1602852 | 1.0959388 |
| 30 | -1.1387018 | 1.1492869 |
| 31 | -1.1176614 | 1.2013030 |
| 32 | -1.0970991 | 1.2521453 |
| 33 | -1.0769535 | 1.3019630 |
| 34 | -1.0571664 | 1.3508919 |
| 35 | -1.0452443 | 1.3463677 |
| 36 | -1.0333291 | 1.3418487 |
| 37 | -1.0214240 | 1.3373314 |
| 38 | -1.0095293 | 1.3328158 |
| 39 | -0.9976345 | 1.3283019 |
| 40 | -0.9857465 | 1.3237888 |
| 41 | -0.9738620 | 1.3192758 |
| 42 | -0.9619741 | 1.3147610 |
| 43 | -0.9500861 | 1.3102454 |
| 44 | -0.9381982 | 1.3057281 |

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* PHOTO FRAME NUMBER 6 OF 8 *
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## FRAME 91

| | YEAR | MONTH | DAY | HOUR | MINUTE | SECOND |
|---|---|---|---|---|---|---|
| GMT | 67 | 2 | 18 | 7 | 32 | 20.799 |

| | | | | | |
|---|---|---|---|---|---|
| LONGITUDE OF NADIR POINT | = | -0.7368622 | DEG | LATITUDE OF NADIR POINT | = 1.6103494 DEG |
| LONG OF CAMERA AXIS INTERSECT | = | -0.9883318 | DEG | LATI OF CAMERA AXIS INTERSECT | = 1.0034724 DEG |
| SPACECRAFT RADIUS | = | 1784.4781799 | KM | SPACECRAFT ALTITUDE | = 46.3881836 KM |
| MEAN ALTITUDE RATE | = | -0.0492524 | KM/SEC | TIME FROM PERIAPSIS | = -94.7731216 SEC |
| HORIZONTAL VELOCITY | = | 1.9157032 | KM/SEC | TRUE ANOMALY | = 354.1605644 DEG |
| SCALE FACTOR (HIGH) | = | 0.0120491 | M/KM | TILT DISTANCE (HIGH) | = 262.4877777 MM |
| SCALE FACTOR (LOW) | = | 0.0015802 | M/KM | TILT DISTANCE (LOW) | = 34.4246264 MM |
| IMAGE MOTION COMPENSATION (V/H) | = | 0.0378486 | RAD/SEC | SWING ANGLE | = 1.5564327 DEG |
| EMISSION ANGLE | = | 23.9422555 | DEG | INCIDENCE ANGLE | = 76.5973883 DEG |
| PHASE ANGLE | = | 69.4486790 | DEG | NORTH DEVIATION ANGLE | = 337.2819443 DEG |
| TILT ANGLE | = | 23.2825882 | DEG | RESOLUTION CONSTANT | = 1.0985847 MTR |
| TILT AZIMUTH | = | 202.4060287 | DEG | SUN AZIMUTH AT PRINCIPAL GND PT | = 91.7531052 DEG |
| SUN ANGLE AT NADIR | = | 76.3655787 | DEG | SUN ARC AT NADIR | = 2316.5798950 KM |
| LONGITUDE DISTANCE TO TARGET | = | 0.5461378 | DEG | LATITUDE DISTANCE TO TARGET | = 0.5773494 DEG |
| LONGITUDE ARC LENGTH TO TARGET | = | 16.5673056 | KM | LATITUDE ARC LENGTH TO TARGET | = 17.5141208 KM |
| FORWARD OVERLAP RATIO | = | 20.7244098 | PCT | SIDE OVERLAP RATIO | = 0. PCT |
| TIME BETWEEN PHOTOS | = | 1.8999696 | SEC | ALPHA | = 5.9404694 DEG. |

| | X | Y | Z | MAGNITUDE (KM) |
|---|---|---|---|---|
| DIRECTION COSINES TO TARGET | -0.88227940 | -0.30464425 | -0.35885226 | 52.42560148 |
| CAMERA AXIS | -0.90979698 | -0.13897413 | -0.39109545 | 50.62602234 |
| C1 | -0.96734578 | -0.03689462 | -0.25076070 | 47.68827820 |
| C2 | -0.82083097 | -0.15351742 | -0.55015355 | 55.95524597 |
| C3 | -0.82183737 | -0.23640830 | -0.51835747 | 56.02178955 |
| C4 | -0.96835218 | -0.11978550 | -0.21896464 | 47.73632812 |

| | X | Y | Z | X DOT | Y DOT | Z DOT |
|---|---|---|---|---|---|---|
| STATE VECTOR (1950.0) | -544.4210205 | -1587.2933044 | -607.0157547 | 1.7249840 | -0.2292112 | -0.8028589 |

LONG -0.3095 DEG
LATI 1.4136 DEG

LONG -0.6592 DEG
LATI -0.0998 DEG

(1) • 47.11688 KM • (2)

LOW RESOLUTION

29.57723 KM 42.77386 KM

(4) • 47.61900 KM • (3)

LONG -1.2203 DEG
LATI 1.7624 DEG

LONG -1.9817 DEG
LATI 0.3895 DEG

LONG -0.8144 DEG
LATI 1.2590 DEG

LONG -1.0395 DEG
LATI 0.6383 DEG

(1) • 20.02755 KM • (2)

HIGH RESOLUTION

4.23644 KM 4.97142 KM

(4) • 20.05344 KM • (3)

LONG -0.9450 DEG
LATI 1.3087 DEG

LONG -1.1930 DEG
LATI 0.6959 DEG

LOW RESOLUTION 91

| INDEX | LONGITUDE | LATITUDE |
|---|---|---|
| 1 | -0.3094895 | 1.4135623 |
| 2 | -0.3343377 | 1.3079547 |
| 3 | -0.3594524 | 1.2009188 |
| 4 | -0.3851031 | 1.0912926 |
| 5 | -0.4115838 | 0.9778013 |
| 6 | -0.4392221 | 0.8589885 |
| 7 | -0.4684075 | 0.7331371 |
| 8 | -0.4996010 | 0.5981547 |
| 9 | -0.5333968 | 0.4514072 |
| 10 | -0.5705359 | 0.2894882 |
| 11 | -0.6120157 | 0.1078444 |
| 12 | -0.6591986 | -0.0998113 |
| 13 | -0.7849526 | -0.0515696 |
| 14 | -0.9066086 | -0.0052453 |
| 15 | -1.0252694 | 0.0396134 |
| 16 | -1.1419495 | 0.0834086 |
| 17 | -1.2575846 | 0.1265053 |
| 18 | -1.3730831 | 0.1692478 |
| 19 | -1.4893466 | 0.2119672 |
| 20 | -1.6073040 | 0.2549966 |
| 21 | -1.7279354 | 0.2986773 |
| 22 | -1.8523200 | 0.3433698 |
| 23 | -1.9816598 | 0.3894762 |
| 24 | -1.8762461 | 0.5778835 |
| 25 | -1.7842947 | 0.7426755 |
| 26 | -1.7025237 | 0.8895638 |
| 27 | -1.6285766 | 1.0226825 |
| 28 | -1.5606880 | 1.1451290 |
| 29 | -1.4975019 | 1.2592905 |
| 30 | -1.4379494 | 1.3670692 |
| 31 | -1.3811530 | 1.4700215 |
| 32 | -1.3263681 | 1.5694707 |
| 33 | -1.2729560 | 1.6665730 |
| 34 | -1.2203260 | 1.7623817 |
| 35 | -1.1320970 | 1.7286321 |
| 36 | -1.0469929 | 1.6960708 |
| 37 | -0.9642451 | 1.6644027 |
| 38 | -0.8831571 | 1.6333612 |
| 39 | -0.8030800 | 1.6027013 |
| 40 | -0.7234058 | 1.5721874 |
| 41 | -0.6435370 | 1.5415933 |
| 42 | -0.5628656 | 1.5106850 |
| 43 | -0.4807633 | 1.4792209 |
| 44 | -0.3965505 | 1.4469423 |

HIGH RESOLUTION 91

| INDEX | LONGITUDE | LATITUDE |
|---|---|---|
| 1 | -0.8144249 | 1.2590088 |
| 2 | -0.8323678 | 1.2095607 |
| 3 | -0.8506352 | 1.1592137 |
| 4 | -0.8692747 | 1.1078302 |
| 5 | -0.8883446 | 1.0552634 |
| 6 | -0.9078995 | 1.0013493 |
| 7 | -0.9280007 | 0.9459137 |
| 8 | -0.9487235 | 0.8887621 |
| 9 | -0.9701430 | 0.8296818 |
| 10 | -0.9923445 | 0.7684338 |
| 11 | -1.0154237 | 0.7047526 |
| 12 | -1.0394933 | 0.6383375 |
| 13 | -1.0534405 | 0.6435788 |
| 14 | -1.0673810 | 0.6488159 |
| 15 | -1.0813180 | 0.6540478 |
| 16 | -1.0952550 | 0.6592772 |
| 17 | -1.1091954 | 0.6645040 |
| 18 | -1.1231358 | 0.6697291 |
| 19 | -1.1370830 | 0.6749524 |
| 20 | -1.1510371 | 0.6801767 |
| 21 | -1.1650014 | 0.6854018 |
| 22 | -1.1789726 | 0.6906269 |
| 23 | -1.1929608 | 0.6958545 |
| 24 | -1.1664085 | 0.7614278 |
| 25 | -1.1409558 | 0.8243022 |
| 26 | -1.1164764 | 0.8847733 |
| 27 | -1.0928678 | 0.9431057 |
| 28 | -1.0700345 | 0.9995316 |
| 29 | -1.0478876 | 1.0542653 |
| 30 | -1.0263486 | 1.1074955 |
| 31 | -1.0053560 | 1.1593973 |
| 32 | -0.9848347 | 1.2101294 |
| 33 | -0.9647301 | 1.2598369 |
| 34 | -0.9449874 | 1.3086591 |
| 35 | -0.9330926 | 1.3041384 |
| 36 | -0.9212081 | 1.2996228 |
| 37 | -0.9093304 | 1.2951097 |
| 38 | -0.8974629 | 1.2905975 |
| 39 | -0.8855989 | 1.2860862 |
| 40 | -0.8737383 | 1.2815757 |
| 41 | -0.8618776 | 1.2770652 |
| 42 | -0.8500170 | 1.2725539 |
| 43 | -0.8381564 | 1.2680408 |
| 44 | -0.8262924 | 1.2635261 |

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* PHOTO FRAME NUMBER 7 OF 8 *
**********

## FRAME 92

| | YEAR | MONTH | DAY | HOUR | MINUTE | SECOND |
|---|---|---|---|---|---|---|
| GMT | 67 | 2 | 18 | 7 | 32 | 23.199 |

| | | | | | |
|---|---|---|---|---|---|
| LONGITUDE OF NADIR POINT | = | -0.5992546 | DEG | LATITUDE OF NADIR POINT | = 1.5575136 DEG |
| LONG OF CAMERA AXIS INTERSECT | = | -0.8464380 | DEG | LATI OF CAMERA AXIS INTERSECT | = 0.9477972 DEG |
| SPACECRAFT RADIUS | = | 1784.3614197 | KM | SPACECRAFT ALTITUDE | = 46.2714233 KM |
| MEAN ALTITUDE RATE | = | -0.0480130 | KM/SEC | TIME FROM PERIAPSIS | = -92.3733397 SEC |
| HORIZONTAL VELOCITY | = | 1.9158282 | KM/SEC | TRUE ANOMALY | = 354.3079948 DEG |
| SCALE FACTOR (HIGH) | = | 0.0120799 | M/KM | TILT DISTANCE (HIGH) | = 262.4463882 MM |
| SCALE FACTOR (LOW) | = | 0.0015842 | M/KM | TILT DISTANCE (LOW) | = 34.4191985 MM |
| IMAGE MOTION COMPENSATION (V/H) | = | 0.0379460 | RAD/SEC | SWING ANGLE | = 1.1829164 DEG |
| EMISSION ANGLE | = | 23.9372048 | DEG | INCIDENCE ANGLE | = 76.4536390 DEG |
| PHASE ANGLE | = | 69.4486809 | DEG | NORTH DEVIATION ANGLE | = 337.2699585 DEG |
| TILT ANGLE | = | 23.2793078 | DEG | RESOLUTION CONSTANT | = 1.0957848 MIR |
| TILT AZIMUTH | = | 202.0667381 | DEG | SUN AZIMUTH AT PRINCIPAL GND PT | = 91.7439480 DEG |
| SUN ANGLE AT NADIR | = | 76.2260094 | DEG | SUN ARC AT NADIR | = 2312.3459778 KM |
| LONGITUDE DISTANCE TO TARGET | = | 0.6837454 | DEG | LATITUDE DISTANCE TO TARGET | = 0.5245136 DEG |
| LONGITUDE ARC LENGTH TO TARGET | = | 20.7416856 | KM | LATITUDE ARC LENGTH TO TARGET | = 15.9113268 KM |
| FORWARD OVERLAP RATIO | = | -0.4963842 | PCT | SIDE OVERLAP RATIO | = 0. PCT |
| TIME BETWEEN PHOTOS | = | 2.3998260 | SEC | ALPHA | = 5.7794302 DEG. |

| | X | Y | Z | MAGNITUDE (KM) |
|---|---|---|---|---|
| DIRECTION COSINES TO TARGET | -0.86717679 | -0.37993084 | -0.32195804 | 53.31410837 |
| CAMERA AXIS | -0.90979783 | -0.13896877 | -0.39109536 | 50.49699402 |
| C1 | -0.96734602 | -0.03688892 | -0.25076060 | 47.57270813 |
| C2 | -0.82083192 | -0.15351257 | -0.55015346 | 55.82009888 |
| C3 | -0.82183880 | -0.23640344 | -0.51835740 | 55.87351392 |
| C4 | -0.96835289 | -0.11977980 | -0.21896454 | 47.60913086 |

| | X | Y | Z | X DOT | Y DOT | Z DOT |
|---|---|---|---|---|---|---|
| STATE VECTOR (1950.0) | -540.2782211 | -1587.8396912 | -608.9419022 | 1.7260084 | -0.2259209 | -0.8015972 |

LONG -0.1690 DEG
LATI 1.3596 DEG

LONG -0.5181 DEG
LATI -0.1518 DEG

(1) * 47.05439 KM * (2)

LOW RESOLUTION

29.50102 KM 42.66034 KM

(4) * 47.43492 KM * (3)

LONG -1.0774 DEG
LATI 1.7077 DEG

LONG -1.8356 DEG
LATI 0.3400 DEG

LONG -0.6730 DEG
LATI 1.2056 DEG

LONG -0.8975 DEG
LATI 0.5865 DEG

(1) * 19.97927 KM * (2)

HIGH RESOLUTION

4.22555 KM 4.95852 KM

(4) * 19.99888 KM * (3)

LONG -0.8032 DEG
LATI 1.2552 DEG

LONG -1.0535 DEG
LATI 0.6441 DEG

LOW RESOLUTION 92

| INDEX | LONGITUDE | LATITUDE |
|---|---|---|
| 1 | -0.1689550 | 1.3596243 |
| 2 | -0.1937554 | 1.2541918 |
| 3 | -0.2188256 | 1.1473258 |
| 4 | -0.2444286 | 1.0378686 |
| 5 | -0.2708614 | 0.9245463 |
| 6 | -0.2984519 | 0.8059034 |
| 7 | -0.3275861 | 0.6802254 |
| 8 | -0.3587284 | 0.5454188 |
| 9 | -0.3924661 | 0.3988549 |
| 10 | -0.4295472 | 0.2371245 |
| 11 | -0.4709620 | 0.0556797 |
| 12 | -0.5180733 | -0.1517694 |
| 13 | -0.6436497 | -0.1031913 |
| 14 | -0.7650734 | -0.0565651 |
| 15 | -0.8834542 | -0.0114300 |
| 16 | -0.9998065 | 0.0326184 |
| 17 | -1.1150659 | 0.0759474 |
| 18 | -1.2301375 | 0.1189051 |
| 19 | -1.3459229 | 0.1618225 |
| 20 | -1.4633373 | 0.2050354 |
| 21 | -1.5833642 | 0.2488861 |
| 22 | -1.7070623 | 0.2937365 |
| 23 | -1.8356270 | 0.3399855 |
| 24 | -1.7306914 | 0.5275971 |
| 25 | -1.6391429 | 0.6917129 |
| 26 | -1.5577237 | 0.8380172 |
| 27 | -1.4840806 | 0.9706202 |
| 28 | -1.4164651 | 1.0926031 |
| 29 | -1.3535317 | 1.2063412 |
| 30 | -1.2942081 | 1.3137271 |
| 31 | -1.2376234 | 1.4163114 |
| 32 | -1.1830400 | 1.5154098 |
| 33 | -1.1298226 | 1.6121748 |
| 34 | -1.0773804 | 1.7076565 |
| 35 | -0.9895202 | 1.6740349 |
| 36 | -0.9047473 | 1.6415864 |
| 37 | -0.8222933 | 1.6100173 |
| 38 | -0.7414683 | 1.5790637 |
| 39 | -0.6616267 | 1.5484824 |
| 40 | -0.5821643 | 1.5180385 |
| 41 | -0.5024799 | 1.4875033 |
| 42 | -0.4219725 | 1.4566462 |
| 43 | -0.3400136 | 1.4252248 |
| 44 | -0.2559238 | 1.3929803 |

HIGH RESOLUTION 92

| INDEX | LONGITUDE | LATITUDE |
|---|---|---|
| 1 | -0.6729751 | 1.2056214 |
| 2 | -0.6908805 | 1.1562938 |
| 3 | -0.7091034 | 1.1060689 |
| 4 | -0.7277020 | 1.0548117 |
| 5 | -0.7467275 | 1.0023704 |
| 6 | -0.7662345 | 0.9485886 |
| 7 | -0.7862914 | 0.8932863 |
| 8 | -0.8069663 | 0.8362738 |
| 9 | -0.8283380 | 0.7773361 |
| 10 | -0.8504849 | 0.7162367 |
| 11 | -0.8735129 | 0.6527099 |
| 12 | -0.8975244 | 0.5864554 |
| 13 | -0.9114273 | 0.5917104 |
| 14 | -0.9253267 | 0.5969594 |
| 15 | -0.9392193 | 0.6022050 |
| 16 | -0.9531153 | 0.6074463 |
| 17 | -0.9670079 | 0.6126867 |
| 18 | -0.9809039 | 0.6179229 |
| 19 | -0.9948034 | 0.6231600 |
| 20 | -1.0087096 | 0.6283945 |
| 21 | -1.0226227 | 0.6336307 |
| 22 | -1.0365495 | 0.6388669 |
| 23 | -1.0504865 | 0.6441056 |
| 24 | -1.0240058 | 0.7094970 |
| 25 | -0.9986214 | 0.7721973 |
| 26 | -0.9742069 | 0.8325019 |
| 27 | -0.9506633 | 0.8906737 |
| 28 | -0.9278880 | 0.9469460 |
| 29 | -0.9057992 | 1.0015303 |
| 30 | -0.8843182 | 1.0546153 |
| 31 | -0.8633769 | 1.1063754 |
| 32 | -0.8429102 | 1.1569700 |
| 33 | -0.8228602 | 1.2065426 |
| 34 | -0.8031653 | 1.2552334 |
| 35 | -0.7913081 | 1.2507177 |
| 36 | -0.7794612 | 1.2462064 |
| 37 | -0.7676210 | 1.2416959 |
| 38 | -0.7557843 | 1.2371880 |
| 39 | -0.7439544 | 1.2326818 |
| 40 | -0.7321280 | 1.2281739 |
| 41 | -0.7203015 | 1.2236668 |
| 42 | -0.7084750 | 1.2191580 |
| 43 | -0.6966485 | 1.2146484 |
| 44 | -0.6848152 | 1.2101362 |

**********
* PHOTO FRAME NUMBER 8 OF 8 *
**********

## FRAME 93

| | YEAR | MONTH | DAY | HOUR | MINUTE | SECOND |
|---|---|---|---|---|---|---|
| GMT | 67 | 2 | 18 | 7 | 32 | 25.400 |

| | | | | | |
|---|---|---|---|---|---|
| LONGITUDE OF NADIR POINT | = | -0.4731598 | DEG | LATITUDE OF NADIR POINT | = | 1.5090867 | DEG |
| LONG OF CAMERA AXIS INTERSECT | = | -0.7164493 | DEG | LATI OF CAMERA AXIS INTERSECT | = | 0.8994855 | DEG |
| SPACECRAFT RADIUS | = | 1784.2570343 | KM | SPACECRAFT ALTITUDE | = | 46.1670380 | KM |
| MEAN ALTITUDE RATE | = | -0.0468769 | KM/SEC | TIME FROM PERIAPSIS | = | -30.1772537 | SEC |
| HORIZONTAL VELOCITY | = | 1.9159400 | KM/SEC | TRUE ANOMALY | = | 354.4431000 | DEG |
| SCALE FACTOR (HIGH) | = | 0.0121075 | M/KM | TILT DISTANCE (HIGH) | = | 262.4182320 | MM |
| SCALE FACTOR (LOW) | = | 0.0015879 | M/KM | TILT DISTANCE (LOW) | = | 34.4155059 | MM |
| IMAGE MOTION COMPENSATION (V/H) | = | 0.0380331 | RAD/SEC | SWING ANGLE | = | 0.8405521 | DEG |
| EMISSION ANGLE | = | 23.9334147 | DEG | INCIDENCE ANGLE | = | 76.3219509 | DEG |
| PHASE ANGLE | = | 69.4486809 | DEG | NORTH DEVIATION ANGLE | = | 337.2592049 | DEG |
| TILT ANGLE | = | 23.2770765 | DEG | RESOLUTION CONSTANT | = | 1.0932878 | MIR |
| TILT AZIMUTH | = | 201.7556210 | DEG | SUN AZIMUTH AT PRINCIPAL GND PT | = | 91.7353115 | DEG |
| SUN ANGLE AT NADIR | = | 76.0981188 | DEG | SUN ARC AT NADIR | = | 2308.4664001 | KM |
| LONGITUDE DISTANCE TO TARGET | = | 0.8098402 | DEG | LATITUDE DISTANCE TO TARGET | = | 0.4760867 | DEG |
| LONGITUDE ARC LENGTH TO TARGET | = | 24.5668213 | KM | LATITUDE ARC LENGTH TO TARGET | = | 14.4422779 | KM |
| FORWARD OVERLAP RATIO | = | 7.7052315 | PCT | SIDE OVERLAP RATIO | = | 0. | PCT |
| TIME BETWEEN PHOTOS | = | 2.2002697 | SEC | ALPHA | = | 5.6318179 | DEG. |

| | X | Y | Z | MAGNITUDE (KM) |
|---|---|---|---|---|
| DIRECTION COSINES TO TARGET | -0.84859256 | -0.44410762 | -0.28750493 | 54.44961214 |
| CAMERA AXIS | -0.90979862 | -0.13896381 | -0.39109529 | 50.38192749 |
| C1 | -0.96734625 | -0.03688366 | -0.25076052 | 47.46975708 |
| C2 | -0.82083282 | -0.15350810 | -0.55015340 | 55.69972229 |
| C3 | -0.82184014 | -0.23639897 | -0.51835733 | 55.73547363 |
| C4 | -0.96835357 | -0.11977454 | -0.21896446 | 47.49557495 |

| | X | Y | Z | X DOT | Y DOT | Z DOT |
|---|---|---|---|---|---|---|
| STATE VECTOR (1950.0) | -536.4798813 | -1588.3333893 | -610.7041397 | 1.7270313 | -0.2229045 | -0.8004374 |

LONG -0.0402 DEG
LATI 1.3102 DEG

LONG -0.3888 DEG
LATI -0.1995 DEG

* 47.00000 KM *
(1) (2)

LOW RESOLUTION

29.43326 KM 42.55972 KM

(4) (3)
* *
47.26968 KM

LONG -0.9464 DEG
LATI 1.6575 DEG

LONG -1.7019 DEG
LATI 0.2945 DEG

LONG -0.5434 DEG
LATI 1.1567 DEG

LONG -0.7675 DEG
LATI 0.5388 DEG

* 19.93627 KM *
(1) (2)

HIGH RESOLUTION

4.21586 KM 4.94706 KM

(4) (3)
* *
19.95018 KM

LONG -0.6732 DEG
LATI 1.7063 DEG

LONG -0.9200 DEG
LATI 0.5966 DEG

LOW RESOLUTION 93

| INDEX | LONGITUDE | LATITUDE |
|---|---|---|
| 1 | -0.0401683 | 1.3101831 |
| 2 | -0.0649278 | 1.2049025 |
| 3 | -0.0899536 | 1.0981868 |
| 4 | -0.1155156 | 0.9888782 |
| 5 | -0.1419074 | 0.8757028 |
| 6 | -0.1694536 | 0.7572084 |
| 7 | -0.1985399 | 0.6316806 |
| 8 | -0.2296378 | 0.4970286 |
| 9 | -0.2633277 | 0.3506226 |
| 10 | -0.3003541 | 0.1890562 |
| 11 | -0.3417144 | 0.0077803 |
| 12 | -0.3887641 | -0.1994919 |
| 13 | -0.5141835 | -0.1506014 |
| 14 | -0.6354022 | -0.1036959 |
| 15 | -0.7535338 | -0.0583059 |
| 16 | -0.8695923 | -0.0140258 |
| 17 | -0.9845171 | 0.0295192 |
| 18 | -1.0992062 | 0.0726749 |
| 19 | -1.2145613 | 0.1157751 |
| 20 | -1.3314907 | 0.1591588 |
| 21 | -1.4509712 | 0.2031640 |
| 22 | -1.5740512 | 0.2481596 |
| 23 | -1.7019192 | 0.2945400 |
| 24 | -1.5974173 | 0.4814361 |
| 25 | -1.5062343 | 0.6449466 |
| 26 | -1.4251258 | 0.7907267 |
| 27 | -1.3517559 | 0.9228670 |
| 28 | -1.2843863 | 1.0444332 |
| 29 | -1.2216749 | 1.1577913 |
| 30 | -1.1625562 | 1.2648247 |
| 31 | -1.1061662 | 1.3670786 |
| 32 | -1.0517672 | 1.4658636 |
| 33 | -0.9987205 | 1.5623263 |
| 34 | -0.9464490 | 1.6575153 |
| 35 | -0.8589202 | 1.6240072 |
| 36 | -0.7744444 | 1.5916603 |
| 37 | -0.6922533 | 1.5601808 |
| 38 | -0.6116605 | 1.5293067 |
| 39 | -0.5320307 | 1.4987936 |
| 40 | -0.4527527 | 1.4684112 |
| 41 | -0.3732357 | 1.4379290 |
| 42 | -0.2928751 | 1.4071171 |
| 43 | -0.2110392 | 1.3757324 |
| 44 | -0.1270518 | 1.3435170 |

HIGH RESOLUTION 93

| INDEX | LONGITUDE | LATITUDE |
|---|---|---|
| 1 | -0.5433825 | 1.1566720 |
| 2 | -0.5612503 | 1.1074511 |
| 3 | -0.5794391 | 1.0573363 |
| 4 | -0.5979967 | 1.0061910 |
| 5 | -0.6169812 | 0.9538641 |
| 6 | -0.6364507 | 0.9001967 |
| 7 | -0.6564665 | 0.8450148 |
| 8 | -0.6770971 | 0.7881253 |
| 9 | -0.6984244 | 0.7293156 |
| 10 | -0.7205269 | 0.6683485 |
| 11 | -0.7435036 | 0.6049584 |
| 12 | -0.7674674 | 0.5388473 |
| 13 | -0.7813326 | 0.5441151 |
| 14 | -0.7951911 | 0.5493760 |
| 15 | -0.8090496 | 0.5546336 |
| 16 | -0.8229012 | 0.5598877 |
| 17 | -0.8367528 | 0.5651384 |
| 18 | -0.8506078 | 0.5703857 |
| 19 | -0.8644663 | 0.5756338 |
| 20 | -0.8783316 | 0.5808794 |
| 21 | -0.8922037 | 0.5861250 |
| 22 | -0.9060826 | 0.5913731 |
| 23 | -0.9199752 | 0.5966213 |
| 24 | -0.8935595 | 0.6618496 |
| 25 | -0.8682366 | 0.7243953 |
| 26 | -0.8438801 | 0.7845514 |
| 27 | -0.8203911 | 0.8425815 |
| 28 | -0.7976705 | 0.8987146 |
| 29 | -0.7756363 | 0.9531657 |
| 30 | -0.7542066 | 1.0061218 |
| 31 | -0.7333130 | 1.0577555 |
| 32 | -0.7128941 | 1.1082272 |
| 33 | -0.6928885 | 1.1576803 |
| 34 | -0.6732415 | 1.2062515 |
| 35 | -0.6614184 | 1.2017410 |
| 36 | -0.6496022 | 1.1972331 |
| 37 | -0.6377928 | 1.1927269 |
| 38 | -0.6259902 | 1.1882215 |
| 39 | -0.6141877 | 1.1837170 |
| 40 | -0.6023919 | 1.1792134 |
| 41 | -0.5905962 | 1.1747088 |
| 42 | -0.5787970 | 1.1702026 |
| 43 | -0.5669979 | 1.1656964 |
| 44 | -0.5551953 | 1.1611859 |

PHOTO FRAME NUMBER 1 OF 8

## FRAME 94

| | YEAR | MONTH | DAY | HOUR | MINUTE | SECOND |
|---|---|---|---|---|---|---|
| GMT | 67 | 2 | 18 | 11 | 1 | 10.399 |

| | | | | | | |
|---|---|---|---|---|---|---|
| LONGITUDE OF NADIR POINT | = | -1.5710678 | DEG | LATITUDE OF NADIR POINT | = | 1.1967695 DEG |
| LONG OF CAMERA AXIS INTERSECT | = | -1.6863327 | DEG | LATI OF CAMERA AXIS INTERSECT | = | 0.9595289 DEG |
| SPACECRAFT RADIUS | = | 1783.5395203 | KM | SPACECRAFT ALTITUDE | = | 45.4495239 KM |
| MEAN ALTITUDE RATE | = | -0.0403298 | KM/SEC | TIME FROM PERIAPSIS | = | -77.5078230 SEC |
| HORIZONTAL VELOCITY | = | 1.9166606 | KM/SEC | TRUE ANOMALY | = | 355.2220650 DEG |
| SCALE FACTOR (HIGH) | = | 0.0132130 | M/KM | TILT DISTANCE (HIGH) | = | 107.3424511 MM |
| SCALE FACTOR (LOW) | = | 0.0017329 | M/KM | TILT DISTANCE (LOW) | = | 14.0776985 MM |
| IMAGE MOTION COMPENSATION (V/H) | = | 0.0415246 | RAD/SEC | SWING ANGLE | = | 4.9281815 DEG |
| EMISSION ANGLE | = | 10.2439879 | DEG | INCIDENCE ANGLE | = | 75.5311480 DEG |
| PHASE ANGLE | = | 71.5606613 | DEG | NORTH DEVIATION ANGLE | = | 338.6548271 DEG |
| TILT ANGLE | = | 9.9802305 | DEG | RESOLUTION CONSTANT | = | 1.0018141 MTR |
| TILT AZIMUTH | = | 235.9118576 | DEG | SUN AZIMUTH AT PRINCIPAL GND PT | = | 91.7676687 DEG |
| SUN ANGLE AT NADIR | = | 75.4234028 | DEG | SUN ARC AT NADIR | = | 2287.9986267 KM |
| LONGITUDE DISTANCE TO TARGET | = | -0.2380678 | DEG | LATITUDE DISTANCE TO TARGET | = | 0.2797695 DEG |
| LONGITUDE ARC LENGTH TO TARGET | = | -7.2218805 | KM | LATITUDE ARC LENGTH TO TARGET | = | 8.4869179 KM |
| FORWARD OVERLAP RATIO | = | 0. | PCT | SIDE OVERLAP RATIO | = | 0. PCT |
| TIME BETWEEN PHOTOS | = | 0. | SEC | ALPHA | = | 3.7632932 DEG. |

| | X | Y | Z | MAGNITUDE (KM) |
|---|---|---|---|---|
| DIRECTION COSINES TO TARGET | -0.96269237 | 0.18064994 | -0.20146713 | 46.83017635 |
| CAMERA AXIS | -0.98310444 | -0.04879845 | -0.17642103 | 46.16654968 |
| C1 | -0.99802525 | 0.05640525 | -0.02764104 | 45.47026062 |
| C2 | -0.93370615 | -0.06953697 | -0.35122280 | 48.50953674 |
| C3 | -0.93532243 | -0.15237101 | -0.31930398 | 48.57998657 |
| C4 | -0.99964155 | -0.02642879 | 0.00427776 | 45.53204346 |

| | X | Y | Z | X DOT | Y DOT | Z DOT |
|---|---|---|---|---|---|---|
| STATE VECTOR (1950.0) | -511.9985466 | -1591.2382812 | -621.9577560 | 1.7333700 | -0.2023647 | -0.7935312 |

LONG -1.5220 DEG
LATI 1.3308 DEG

LONG -1.4038 DEG
LATI 0.1253 DEG

(1) • 38.35971 KM • (2)

LOW RESOLUTION

29.66245 KM 34.38946 KM

(4) • 38.79456 KM • (3)

LONG -1.9336 DEG
LATI 1.6852 DEG

LONG -2.4658 DEG
LATI 0.5222 DEG

LONG -1.5276 DEG
LATI 1.1866 DEG

LONG -1.7232 DEG
LATI 0.6663 DEG

(1) • 16.86123 KM • (2)

HIGH RESOLUTION

4.04032 KM 4.31066 KM

(4) • 16.88572 KM • (3)

LONG -1.6519 DEG
LATI 1.2345 DEG

LONG -1.8561 DEG
LATI 0.7167 DEG

LOW RESOLUTION 94

| INDEX | LONGITUDE | LATITUDE |
|---|---|---|
| 1 | -1.0219670 | 1.3307735 |
| 2 | -1.0551003 | 1.2274055 |
| 3 | -1.0874822 | 1.1261641 |
| 4 | -1.1194577 | 1.0259695 |
| 5 | -1.1513650 | 0.9257852 |
| 6 | -1.1835249 | 0.8245737 |
| 7 | -1.2162825 | 0.7212611 |
| 8 | -1.2500031 | 0.6146743 |
| 9 | -1.2850932 | 0.5034934 |
| 10 | -1.3220275 | 0.3861797 |
| 11 | -1.3613796 | 0.2608722 |
| 12 | -1.4038463 | 0.1252580 |
| 13 | -1.5047931 | 0.1636675 |
| 14 | -1.6025126 | 0.2007136 |
| 15 | -1.6978723 | 0.2367378 |
| 16 | -1.7916610 | 0.2720439 |
| 17 | -1.8846199 | 0.3069163 |
| 18 | -1.9774558 | 0.3416230 |
| 19 | -2.0708792 | 0.3764296 |
| 20 | -2.1656139 | 0.4116000 |
| 21 | -2.2624318 | 0.4474141 |
| 22 | -2.3621697 | 0.4841716 |
| 23 | -2.4657597 | 0.5222047 |
| 24 | -2.4054082 | 0.6528944 |
| 25 | -2.3497558 | 0.7736794 |
| 26 | -2.2977541 | 0.8867839 |
| 27 | -2.2485563 | 0.9939983 |
| 28 | -2.2014690 | 1.0968046 |
| 29 | -2.1558979 | 1.1964758 |
| 30 | -2.1113275 | 1.2941398 |
| 31 | -2.0672694 | 1.3908357 |
| 32 | -2.0232762 | 1.4875648 |
| 33 | -1.9788834 | 1.5853270 |
| 34 | -1.9336299 | 1.6851681 |
| 35 | -1.8451380 | 1.6506176 |
| 36 | -1.7598255 | 1.6173375 |
| 37 | -1.6769070 | 1.5850205 |
| 38 | -1.5956824 | 1.5533925 |
| 39 | -1.5155063 | 1.5221990 |
| 40 | -1.4357672 | 1.4912010 |
| 41 | -1.3558574 | 1.4601647 |
| 42 | -1.2751792 | 1.4288568 |
| 43 | -1.1930974 | 1.3970315 |
| 44 | -1.1089392 | 1.3644327 |

HIGH RESOLUTION 94

| INDEX | LONGITUDE | LATITUDE |
|---|---|---|
| 1 | -1.5275513 | 1.1866275 |
| 2 | -1.5445858 | 1.1413382 |
| 3 | -1.5616544 | 1.0959636 |
| 4 | -1.5787914 | 1.0504020 |
| 5 | -1.5960308 | 1.0045560 |
| 6 | -1.6134170 | 0.9583199 |
| 7 | -1.6309877 | 0.9115869 |
| 8 | -1.6487837 | 0.8642469 |
| 9 | -1.6668530 | 0.8161803 |
| 10 | -1.6852365 | 0.7672659 |
| 11 | -1.7039887 | 0.7173679 |
| 12 | -1.7231611 | 0.6663473 |
| 13 | -1.7352403 | 0.6709243 |
| 14 | -1.7473126 | 0.6754989 |
| 15 | -1.7593816 | 0.6800708 |
| 16 | -1.7714539 | 0.6846411 |
| 17 | -1.7835229 | 0.6892113 |
| 18 | -1.7955986 | 0.6937816 |
| 19 | -1.8076778 | 0.6983510 |
| 20 | -1.8197604 | 0.7029229 |
| 21 | -1.8318533 | 0.7074957 |
| 22 | -1.8439564 | 0.7120720 |
| 23 | -1.8560697 | 0.7166508 |
| 24 | -1.8360334 | 0.7674298 |
| 25 | -1.8164410 | 0.8170904 |
| 26 | -1.7972345 | 0.8657743 |
| 27 | -1.7783661 | 0.9136129 |
| 28 | -1.7597845 | 0.9607310 |
| 29 | -1.7414455 | 1.0072446 |
| 30 | -1.7233011 | 1.0532638 |
| 31 | -1.7053104 | 1.0988963 |
| 32 | -1.6874358 | 1.1442462 |
| 33 | -1.6696329 | 1.1894100 |
| 34 | -1.6518676 | 1.2344909 |
| 35 | -1.6405397 | 1.2301299 |
| 36 | -1.6292221 | 1.2257722 |
| 37 | -1.6179147 | 1.2214179 |
| 38 | -1.6066107 | 1.2170663 |
| 39 | -1.5953136 | 1.2127171 |
| 40 | -1.5840199 | 1.2083689 |
| 41 | -1.5727296 | 1.2040223 |
| 42 | -1.5614359 | 1.1996749 |
| 43 | -1.5501456 | 1.1953275 |
| 44 | -1.5388484 | 1.1909783 |

**********
* PHOTO FRAME NUMBER 2 OF 8 *
**********

## FRAME 95

| | YEAR | MONTH | DAY | HOUR | MINUTE | SECOND |
|---|---|---|---|---|---|---|
| GMT | 67 | 2 | 18 | 11 | 1 | 12.399 |

| | | | | | |
|---|---|---|---|---|---|
| LONGITUDE OF NADIR POINT | = | -1.4563904 | DEG | LATITUDE OF NADIR POINT | = 1.1526012 DEG |
| LONG OF CAMERA AXIS INTERSECT | = | -1.5684573 | DEG | LATI OF CAMERA AXIS INTERSECT | = 0.9146366 DEG |
| SPACECRAFT RADIUS | = | 1783.4598846 | KM | SPACECRAFT ALTITUDE | = 45.3698883 KM |
| MEAN ALTITUDE RATE | = | -0.0392944 | KM/SEC | TIME FROM PERIAPSIS | = -75.5112333 SEC |
| HORIZONTAL VELOCITY | = | 1.9167461 | KM/SEC | TRUE ANOMALY | = 355.3450050 DEG |
| SCALE FACTOR (HIGH) | = | 0.0132366 | M/KM | TILT DISTANCE (HIGH) | = 107.2352581 MM |
| SCALE FACTOR (LOW) | = | 0.0017359 | M/KM | TILT DISTANCE (LOW) | = 14.0636405 MM |
| IMAGE MOTION COMPENSATION (V/H) | = | 0.0415997 | RAD/SEC | SWING ANGLE | = 4.2196165 DEG |
| EMISSION ANGLE | = | 10.2334977 | DEG | INCIDENCE ANGLE | = 75.4116812 DEG |
| PHASE ANGLE | = | 71.5606613 | DEG | NORTH DEVIATION ANGLE | = 338.6493416 DEG |
| TILT ANGLE | = | 9.9704642 | DEG | RESOLUTION CONSTANT | = 1.0000274 MTR |
| TILT AZIMUTH | = | 205.2163620 | DEG | SUN AZIMUTH AT PRINCIPAL GND PT | = 91.7589149 DEG |
| SUN ANGLE AT NADIR | = | 75.3071194 | DEG | SUN ARC AT NADIR | = 2284.4710999 KM |
| LONGITUDE DISTANCE TO TARGET | = | -0.1233904 | DEG | LATITUDE DISTANCE TO TARGET | = 0.2356012 DEG |
| LONGITUDE ARC LENGTH TO TARGET | = | -3.7430956 | KM | LATITUDE ARC LENGTH TO TARGET | = 7.1470557 KM |
| FORWARD OVERLAP RATIO | = | 8.1945889 | PCT | SIDE OVERLAP RATIO | = 0. PCT |
| TIME BETWEEN PHOTOS | = | 2.0000696 | SEC | ALPHA | = 3.6404389 DEG. |

| | X | Y | Z | MAGNITUDE (KM) |
|---|---|---|---|---|
| DIRECTION COSINES TO TARGET | -0.97887042 | 0.10609312 | -0.17480545 | 46.10005093 |
| CAMERA AXIS | -0.98310469 | -0.04879359 | -0.17642096 | 46.08421326 |
| C1 | -0.99802499 | 0.05641016 | -0.02764097 | 45.39364624 |
| C2 | -0.93370651 | -0.06953236 | -0.35122272 | 48.42794800 |
| C3 | -0.93532321 | -0.15236638 | -0.31930391 | 48.48812866 |
| C4 | -0.99964168 | -0.02642386 | 0.00427783 | 45.44641113 |

| | X | Y | Z | X DOT | Y DOT | Z DOT |
|---|---|---|---|---|---|---|
| STATE VECTOR (1950.0) | -508.5309219 | -1591.6402588 | -623.5437393 | 1.7342526 | -0.1996130 | -0.7924530 |

LONG -0.9049 DEG
LATI 1.2853 DEG

LONG -1.2864 DEG
LATI 0.0810 DEG

(1) • 38.32189 KM • (2)

LOW RESOLUTION

29.60829 KM 34.32582 KM

(4) • 38.69327 KM • (3)

LONG -1.8150 DEG
LATI 1.6386 DEG

LONG -2.3457 DEG
LATI 0.4787 DEG

LONG -1.4099 DEG
LATI 1.1413 DEG

LONG -1.6052 DEG
LATI 0.6219 DEG

(1) • 16.83287 KM • (2)

HIGH RESOLUTION

4.03299 KM 4.30283 KM

(4) • 16.85379 KM • (3)

LONG -1.5340 DEG
LATI 1.1891 DEG

LONG -1.7379 DEG
LATI 0.6722 DEG

LOW RESOLUTION 95

| INDEX | LONGITUDE | LATITUDE |
|---|---|---|
| 1 | -0.9048737 | 1.2852853 |
| 2 | -0.9379728 | 1.1820299 |
| 3 | -0.9703206 | 1.0808970 |
| 4 | -1.0022619 | 0.9808075 |
| 5 | -1.0341316 | 0.8807238 |
| 6 | -1.0662608 | 0.7796166 |
| 7 | -1.0989808 | 0.6764064 |
| 8 | -1.1326673 | 0.5699221 |
| 9 | -1.1677199 | 0.4588470 |
| 10 | -1.2046199 | 0.3416409 |
| 11 | -1.2439277 | 0.2164470 |
| 12 | -1.2863534 | 0.0809531 |
| 13 | -1.3872148 | 0.1194950 |
| 14 | -1.4848182 | 0.1566581 |
| 15 | -1.5800379 | 0.1927846 |
| 16 | -1.6736593 | 0.2281812 |
| 17 | -1.7664235 | 0.2631339 |
| 18 | -1.8590374 | 0.2979115 |
| 19 | -1.9522115 | 0.3327771 |
| 20 | -2.0466661 | 0.3679986 |
| 21 | -2.1431631 | 0.4038554 |
| 22 | -2.2425389 | 0.4406454 |
| 23 | -2.3457226 | 0.4786998 |
| 24 | -2.2855452 | 0.6090334 |
| 25 | -2.2300499 | 0.7294932 |
| 26 | -2.1781883 | 0.8422972 |
| 27 | -2.1291236 | 0.9492289 |
| 28 | -2.0821626 | 1.0517680 |
| 29 | -2.0367146 | 1.1511806 |
| 30 | -1.9922569 | 1.2485936 |
| 31 | -1.9483148 | 1.3450444 |
| 32 | -1.9044309 | 1.4415276 |
| 33 | -1.8601508 | 1.5390448 |
| 34 | -1.8150100 | 1.6386358 |
| 35 | -1.7267845 | 1.6042321 |
| 36 | -1.6417008 | 1.5710844 |
| 37 | -1.5589872 | 1.5388877 |
| 38 | -1.4779402 | 1.5073681 |
| 39 | -1.3979211 | 1.4762745 |
| 40 | -1.3183119 | 1.4453670 |
| 41 | -1.2385148 | 1.4144143 |
| 42 | -1.1579288 | 1.3831824 |
| 43 | -1.0759221 | 1.3514263 |
| 44 | -0.9918186 | 1.3188899 |

HIGH RESOLUTION 95

| INDEX | LONGITUDE | LATITUDE |
|---|---|---|
| 1 | -1.4099491 | 1.1413220 |
| 2 | -1.4269597 | 1.0961096 |
| 3 | -1.4439976 | 1.0508118 |
| 4 | -1.4611072 | 1.0053278 |
| 5 | -1.4783193 | 0.9595596 |
| 6 | -1.4956782 | 0.9134012 |
| 7 | -1.5132215 | 0.8667476 |
| 8 | -1.5309869 | 0.8194878 |
| 9 | -1.5490288 | 0.7715032 |
| 10 | -1.5673815 | 0.7226707 |
| 11 | -1.5861031 | 0.6728581 |
| 12 | -1.6052447 | 0.6219229 |
| 13 | -1.6173000 | 0.6265025 |
| 14 | -1.6293484 | 0.6310796 |
| 15 | -1.6413935 | 0.6356541 |
| 16 | -1.6534385 | 0.6402278 |
| 17 | -1.6654835 | 0.6447997 |
| 18 | -1.6775320 | 0.6493717 |
| 19 | -1.6895839 | 0.6539436 |
| 20 | -1.7016426 | 0.6585173 |
| 21 | -1.7137081 | 0.6630927 |
| 22 | -1.7257805 | 0.6676681 |
| 23 | -1.7378665 | 0.6722485 |
| 24 | -1.7178677 | 0.7229303 |
| 25 | -1.6983094 | 0.7724961 |
| 26 | -1.6791405 | 0.8210869 |
| 27 | -1.6603063 | 0.8688342 |
| 28 | -1.6417589 | 0.9158626 |
| 29 | -1.6234506 | 0.9622874 |
| 30 | -1.6053403 | 1.0082196 |
| 31 | -1.5873837 | 1.0537658 |
| 32 | -1.5695399 | 1.0990286 |
| 33 | -1.5517711 | 1.1441079 |
| 34 | -1.5340365 | 1.1891026 |
| 35 | -1.5227326 | 1.1847501 |
| 36 | -1.5114389 | 1.1804010 |
| 37 | -1.5001520 | 1.1760544 |
| 38 | -1.4888685 | 1.1717113 |
| 39 | -1.4775919 | 1.1673689 |
| 40 | -1.4663186 | 1.1630284 |
| 41 | -1.4550488 | 1.1586886 |
| 42 | -1.4437790 | 1.1543480 |
| 43 | -1.4325058 | 1.1500075 |
| 44 | -1.4212292 | 1.1456660 |

**********
* PHOTO FRAME NUMBER 3 OF 8 *
**********

## FRAME 96

| | YEAR | MONTH | DAY | HOUR | MINUTE | SECOND |
|---|---|---|---|---|---|---|
| GMT | 67 | 2 | 18 | 11 | 1 | 14.399 |

| | | | | | |
|---|---|---|---|---|---|
| LONGITUDE OF NADIR POINT | = | -1.3417091 | DEG | LATITUDE OF NADIR POINT | = 1.1084253 DEG |
| LONG OF CAMERA AXIS INTERSECT | = | -1.4505921 | DEG | LATI OF CAMERA AXIS INTERSECT | = 0.8697264 DEG |
| SPACECRAFT RADIUS | = | 1783.3823395 | KM | SPACECRAFT ALTITUDE | = 45.2923431 KM |
| MEAN ALTITUDE RATE | = | -0.0382587 | KM/SEC | TIME FROM PERIAPSIS | = -73.5147028 SEC |
| HORIZONTAL VELOCITY | = | 1.9168289 | KM/SEC | TRUE ANOMALY | = 355.4679489 DEG |
| SCALE FACTOR (HIGH) | = | 0.0132596 | M/KM | TILT DISTANCE (HIGH) | = 107.1447601 MM |
| SCALE FACTOR (LOW) | = | 0.0017390 | M/KM | TILT DISTANCE (LOW) | = 14.0517719 MM |
| IMAGE MOTION COMPENSATION (V/H) | = | 0.0416728 | RAD/SEC | SWING ANGLE | = 3.5097272 DEG |
| EMISSION ANGLE | = | 10.2245721 | DEG | INCIDENCE ANGLE | = 75.2922306 DEG |
| PHASE ANGLE | = | 71.5606623 | DEG | NORTH DEVIATION ANGLE | = 338.6440430 DEG |
| TILT ANGLE | = | 9.9622185 | DEG | RESOLUTION CONSTANT | = 0.9982914 MTR |
| TILT AZIMUTH | = | 204.5194473 | DEG | SUN AZIMUTH AT PRINCIPAL GND PT | = 91.7499666 DEG |
| SUN ANGLE AT NADIR | = | 75.1908340 | DEG | SUN ARC AT NADIR | = 2280.9435425 KM |
| LONGITUDE DISTANCE TO TARGET | = | -0.0087091 | DEG | LATITUDE DISTANCE TO TARGET | = 0.1914253 DEG |
| LONGITUDE ARC LENGTH TO TARGET | = | -0.2641950 | KM | LATITUDE ARC LENGTH TO TARGET | = 5.8069609 KM |
| FORWARD OVERLAP RATIO | = | 8.0284871 | PCT | SIDE OVERLAP RATIO | = 0. PCT |
| TIME BETWEEN PHOTOS | = | 2.0000696 | SEC | ALPHA | = 3.5175647 DEG. |

| | X | Y | Z | MAGNITUDE (KM) |
|---|---|---|---|---|
| DIRECTION COSINES TO TARGET | -0.98881628 | 0.02893882 | -0.14630415 | 45.67345762 |
| CAMERA AXIS | -0.98310494 | -0.04878876 | -0.17642089 | 46.00421143 |
| C1 | -0.99802472 | 0.05641507 | -0.02764089 | 45.31933594 |
| C2 | -0.93370688 | -0.06952777 | -0.35122266 | 48.34881592 |
| C3 | -0.93532397 | -0.15236179 | -0.31930385 | 48.39875793 |
| C4 | -0.99964181 | -0.02641895 | 0.00427791 | 45.36312866 |

| | X | Y | Z | X DOT | Y DOT | Z DOT |
|---|---|---|---|---|---|---|
| STATE VECTOR (1950.0) | -505.0615387 | -1592.0367279 | -625.1275635 | 1.7351294 | -0.1968604 | -0.7913720 |

LONG -0.7878 DEG
LATI 1.2398 DEG

(1) * 38.28597 KM * (2)

LONG -1.1689 DEG
LATI 0.0366 DEG

LOW RESOLUTION

29.55584 KM 34.26424 KM

(4) * 38.59414 KM * (3)

LONG -1.6964 DEG
LATI 1.5921 DEG

LONG -2.2257 DEG
LATI 0.4352 DEG

LONG -1.2923 DEG
LATI 1.0960 DEG

(1) * 16.80536 KM * (2)

LONG -1.4873 DEG
LATI 0.5775 DEG

HIGH RESOLUTION

4.02589 KM 4.29519 KM

(4) * 16.82272 KM * (3)

LONG -1.4162 DEG
LATI 1.1437 DEG

LONG -1.6197 DEG
LATI 0.6278 DEG

LOW RESOLUTION 96

| INDEX | LONGITUDE | LATITUDE |
|---|---|---|
| 1 | -0.7877564 | 1.2397997 |
| 2 | -0.8208180 | 1.1366510 |
| 3 | -0.8531316 | 1.0356206 |
| 4 | -0.8850422 | 0.9356309 |
| 5 | -0.9168777 | 0.8356472 |
| 6 | -0.9489728 | 0.7346355 |
| 7 | -0.9816621 | 0.6315210 |
| 8 | -1.0153144 | 0.5251357 |
| 9 | -1.0503328 | 0.4141605 |
| 10 | -1.0871953 | 0.2970569 |
| 11 | -1.1264689 | 0.1719705 |
| 12 | -1.1688537 | 0.0365885 |
| 13 | -1.2696331 | 0.0752653 |
| 14 | -1.3671272 | 0.1125461 |
| 15 | -1.4622103 | 0.1487777 |
| 16 | -1.5556712 | 0.1842674 |
| 17 | -1.6482441 | 0.2193011 |
| 18 | -1.7406464 | 0.2541488 |
| 19 | -1.8335745 | 0.2890766 |
| 20 | -1.9277491 | 0.3243512 |
| 21 | -2.0239353 | 0.3602506 |
| 22 | -2.1229593 | 0.3970747 |
| 23 | -2.2257400 | 0.4351513 |
| 24 | -2.1657300 | 0.5651375 |
| 25 | -2.1103884 | 0.6852788 |
| 26 | -2.0586702 | 0.7977883 |
| 27 | -2.0097353 | 0.9044442 |
| 28 | -1.9628973 | 1.0067203 |
| 29 | -1.9175653 | 1.1058810 |
| 30 | -1.8732237 | 1.2030482 |
| 31 | -1.8293910 | 1.2992573 |
| 32 | -1.7856163 | 1.3955032 |
| 33 | -1.7414489 | 1.4927788 |
| 34 | -1.6964141 | 1.5921265 |
| 35 | -1.6084480 | 1.5578679 |
| 36 | -1.5235932 | 1.5248491 |
| 37 | -1.4410777 | 1.4927703 |
| 38 | -1.3602048 | 1.4613574 |
| 39 | -1.2803326 | 1.4303611 |
| 40 | -1.2008531 | 1.3995441 |
| 41 | -1.1211653 | 1.3686725 |
| 42 | -1.0406681 | 1.3375149 |
| 43 | -0.9587297 | 1.3058263 |
| 44 | -0.8746740 | 1.2733504 |

HIGH RESOLUTION 96

| INDEX | LONGITUDE | LATITUDE |
|---|---|---|
| 1 | -1.2923469 | 1.0960106 |
| 2 | -1.3093302 | 1.0508732 |
| 3 | -1.3263442 | 1.0056497 |
| 4 | -1.3434265 | 0.9602418 |
| 5 | -1.3606112 | 0.9145487 |
| 6 | -1.3779428 | 0.8684662 |
| 7 | -1.3954588 | 0.8218886 |
| 8 | -1.4131968 | 0.7747065 |
| 9 | -1.4312081 | 0.7268013 |
| 10 | -1.4495334 | 0.6780491 |
| 11 | -1.4682277 | 0.6283193 |
| 12 | -1.4873386 | 0.5774669 |
| 13 | -1.4993699 | 0.5820491 |
| 14 | -1.5113945 | 0.5866296 |
| 15 | -1.5234156 | 0.5912075 |
| 16 | -1.5354367 | 0.5957829 |
| 17 | -1.5474579 | 0.6003574 |
| 18 | -1.5594790 | 0.6049311 |
| 19 | -1.5715070 | 0.6095056 |
| 20 | -1.5835384 | 0.6140801 |
| 21 | -1.5955766 | 0.6186572 |
| 22 | -1.6076250 | 0.6232343 |
| 23 | -1.6196803 | 0.6278165 |
| 24 | -1.5997191 | 0.6784034 |
| 25 | -1.5801950 | 0.7278770 |
| 26 | -1.5610602 | 0.7763782 |
| 27 | -1.5422601 | 0.8240367 |
| 28 | -1.5237469 | 0.8709772 |
| 29 | -1.5054693 | 0.9173157 |
| 30 | -1.4873932 | 0.9631634 |
| 31 | -1.4694674 | 1.0086251 |
| 32 | -1.4516542 | 1.0538051 |
| 33 | -1.4339162 | 1.0987998 |
| 34 | -1.4162158 | 1.1437117 |
| 35 | -1.4049323 | 1.1393660 |
| 36 | -1.3936591 | 1.1350254 |
| 37 | -1.3823927 | 1.1306874 |
| 38 | -1.3711331 | 1.1263511 |
| 39 | -1.3598770 | 1.1220165 |
| 40 | -1.3486242 | 1.1176836 |
| 41 | -1.3373715 | 1.1133498 |
| 42 | -1.3261188 | 1.1090169 |
| 43 | -1.3148660 | 1.1046832 |
| 44 | -1.3036099 | 1.1003477 |

**********
* PHOTO FRAME NUMBER 4 OF 8 *
**********

## FRAME 97

| | YEAR | MONTH | DAY | HOUR | MINUTE | SECOND |
|---|---|---|---|---|---|---|
| GMT | 67 | 2 | 18 | 11 | 1 | 16.499 |

| | | | | | |
|---|---|---|---|---|---|
| LONGITUDE OF NADIR POINT | = | -1.2212296 | DEG | LATITUDE OF NADIR POINT | = 1.0620090 DEG |
| LONG OF CAMERA AXIS INTERSECT | = | -1.3267847 | DEG | LATI OF CAMERA AXIS INTERSECT | = 0.8225289 DEG |
| SPACECRAFT RADIUS | = | 1783.3031006 | KM | SPACECRAFT ALTITUDE | = 45.2131042 KM |
| MEAN ALTITUDE RATE | = | -0.0371704 | KM/SEC | TIME FROM PERIAPSIS | = -71.4172630 SEC |
| HORIZONTAL VELOCITY | = | 1.9169139 | KM/SEC | TRUE ANOMALY | = 355.5971222 DEG |
| SCALE FACTOR (HIGH) | = | 0.0132832 | M/KM | TILT DISTANCE (HIGH) | = 197.0672531 MM |
| SCALE FACTOR (LOW) | = | 0.0017421 | M/KM | TILT DISTANCE (LOW) | = 14.0416070 MM |
| IMAGE MOTION COMPENSATION (V/H) | = | 0.0417475 | RAD/SEC | SWING ANGLE | = 2.7627825 DEG |
| EMISSION ANGLE | = | 10.2168710 | DEG | INCIDENCE ANGLE | = 75.1667595 DEG |
| PHASE ANGLE | = | 71.5606632 | DEG | NORTH DEVIATION ANGLE | = 338.6386719 DEG |
| TILT ANGLE | = | 9.9551563 | DEG | RESOLUTION CONSTANT | = 0.9965222 MTR |
| TILT AZIMUTH | = | 203.7860451 | DEG | SUN AZIMUTH AT PRINCIPAL GND PT | = 91.7403574 DEG |
| SUN ANGLE AT NADIR | = | 75.0686722 | DEG | SUN ARC AT NADIR | = 2277.2377014 KM |
| LONGITUDE DISTANCE TO TARGET | = | 0.1117705 | DEG | LATITUDE DISTANCE TO TARGET | = 0.1450090 DEG |
| LONGITUDE ARC LENGTH TO TARGET | = | 3.3906006 | KM | LATITUDE ARC LENGTH TO TARGET | = 4.3989056 KM |
| FORWARD OVERLAP RATIO | = | 3.2093376 | PCT | SIDE OVERLAP RATIO | = 0. PCT |
| TIME BETWEEN PHOTOS | = | 2.0998478 | SEC | ALPHA | = 3.3884615 DEG. |

| | X | Y | Z | MAGNITUDE (KM) |
|---|---|---|---|---|
| DIRECTION COSINES TO TARGET | -0.99194378 | -0.05328541 | -0.11492698 | 45.56172705 |
| CAMERA AXIS | -0.98310520 | -0.04878367 | -0.17642081 | 45.92268372 |
| C1 | -0.99802442 | 0.05642024 | -0.02764080 | 45.24371338 |
| C2 | -0.93370727 | -0.06952292 | -0.35122259 | 48.26829529 |
| C3 | -0.93532479 | -0.15235693 | -0.31930377 | 48.30751038 |
| C4 | -0.99964194 | -0.02641378 | 0.00427799 | 45.27809143 |

| | X | Y | Z | X DOT | Y DOT | Z DOT |
|---|---|---|---|---|---|---|
| STATE VECTOR (1950.0) | -501.4150696 | -1592.4472961 | -626.7890396 | 1.7360440 | -0.1939675 | -0.7902333 |

LONG -0.6647 DEG
LATI 1.1920 DEG

LONG -1.0454 DEG
LATI -0.0101 DEG

(1) * 38.25028 KM * (2)

LOW RESOLUTION

29.50255 KM 34.20175 KM

(4) * 38.49229 KM * (3)

LONG -1.5719 DEG
LATI 1.5433 DEG

LONG -2.0998 DEG
LATI 0.3894 DEG

LONG -1.1688 DEG
LATI 1.0484 DEG

LONG -1.3635 DEG
LATI 0.5307 DEG

(1) * 16.77737 KM * (2)

HIGH RESOLUTION

4.01867 KM 4.28745 KM

(4) * 16.79101 KM * (3)

LONG -1.2924 DEG
LATI 1.0960 DEG

LONG -1.4955 DEG
LATI 0.5811 DEG

LOW RESOLUTION 97

| INDEX | LONGITUDE | LATITUDE |
|---|---|---|
| 1 | -0.6646969 | 1.1920191 |
| 2 | -0.6977243 | 1.0889789 |
| 3 | -0.7300038 | 0.9880509 |
| 4 | -0.7618803 | 0.8881594 |
| 5 | -0.7936850 | 0.7882730 |
| 6 | -0.8257459 | 0.6873595 |
| 7 | -0.8584045 | 0.5843406 |
| 8 | -0.8920193 | 0.4780518 |
| 9 | -0.9270035 | 0.3671756 |
| 10 | -0.9638319 | 0.2501753 |
| 11 | -1.0030645 | 0.1251922 |
| 12 | -1.0454082 | -0.0100798 |
| 13 | -1.1461091 | 0.0287414 |
| 14 | -1.2434940 | 0.0661487 |
| 15 | -1.3384404 | 0.1024913 |
| 16 | -1.4317374 | 0.1380800 |
| 17 | -1.5241191 | 0.1732008 |
| 18 | -1.6162993 | 0.2081244 |
| 19 | -1.7089748 | 0.2431197 |
| 20 | -1.8028694 | 0.2784497 |
| 21 | -1.8987345 | 0.3143962 |
| 22 | -1.9973932 | 0.3512570 |
| 23 | -2.0997606 | 0.3893600 |
| 24 | -2.0399247 | 0.5189868 |
| 25 | -1.9847402 | 0.6388011 |
| 26 | -1.9331655 | 0.7510083 |
| 27 | -1.8843638 | 0.8573791 |
| 28 | -1.8376521 | 0.9593871 |
| 29 | -1.7924431 | 1.0582883 |
| 30 | -1.7482176 | 1.1552052 |
| 31 | -1.7045010 | 1.2511660 |
| 32 | -1.6608390 | 1.3471643 |
| 33 | -1.6167809 | 1.4441940 |
| 34 | -1.5718621 | 1.5432906 |
| 35 | -1.4841625 | 1.5091815 |
| 36 | -1.3995399 | 1.4762976 |
| 37 | -1.3172259 | 1.4443408 |
| 38 | -1.2365306 | 1.4130389 |
| 39 | -1.1568086 | 1.3821442 |
| 40 | -1.0774589 | 1.3514178 |
| 41 | -0.9978804 | 1.3206299 |
| 42 | -0.9174720 | 1.2895482 |
| 43 | -0.8356319 | 1.2579296 |
| 44 | -0.7515906 | 1.2255161 |

HIGH RESOLUTION 97

| INDEX | LONGITUDE | LATITUDE |
|---|---|---|
| 1 | -1.1688093 | 1.0484067 |
| 2 | -1.1857652 | 1.0033445 |
| 3 | -1.2027519 | 0.9581970 |
| 4 | -1.2198069 | 0.9128650 |
| 5 | -1.2369643 | 0.8672487 |
| 6 | -1.2542686 | 0.8212440 |
| 7 | -1.2717573 | 0.7747449 |
| 8 | -1.2894680 | 0.7276422 |
| 9 | -1.3074484 | 0.6798164 |
| 10 | -1.3257465 | 0.6311462 |
| 11 | -1.3444066 | 0.5814984 |
| 12 | -1.3634901 | 0.5307322 |
| 13 | -1.3754942 | 0.5353178 |
| 14 | -1.3874983 | 0.5399008 |
| 15 | -1.3994955 | 0.5444813 |
| 16 | -1.4114893 | 0.5490601 |
| 17 | -1.4234865 | 0.5536372 |
| 18 | -1.4354838 | 0.5582143 |
| 19 | -1.4474844 | 0.5627905 |
| 20 | -1.4594885 | 0.5673676 |
| 21 | -1.4714993 | 0.5719455 |
| 22 | -1.4835171 | 0.5765269 |
| 23 | -1.4955450 | 0.5811091 |
| 24 | -1.4756214 | 0.6315995 |
| 25 | -1.4561348 | 0.6809792 |
| 26 | -1.4370342 | 0.7293874 |
| 27 | -1.4182683 | 0.7769554 |
| 28 | -1.3997892 | 0.8238079 |
| 29 | -1.3815458 | 0.8700585 |
| 30 | -1.3635004 | 0.9158191 |
| 31 | -1.3456053 | 0.9611946 |
| 32 | -1.3278263 | 1.0062883 |
| 33 | -1.3101225 | 1.0511985 |
| 34 | -1.2924494 | 1.0960251 |
| 35 | -1.2811898 | 1.0916888 |
| 36 | -1.2699405 | 1.0873550 |
| 37 | -1.2586946 | 1.0830255 |
| 38 | -1.2474555 | 1.0786977 |
| 39 | -1.2362198 | 1.0743700 |
| 40 | -1.2249876 | 1.0700439 |
| 41 | -1.2137587 | 1.0657178 |
| 42 | -1.2025265 | 1.0613926 |
| 43 | -1.1912908 | 1.0570648 |
| 44 | -1.1800518 | 1.0527370 |

**********
* PHOTO FRAME NUMBER 5 OF 8 *
**********

## FRAME 98

| | YEAR | MONTH | DAY | HOUR | MINUTE | SECOND |
|---|---|---|---|---|---|---|
| GMT | 67 | 2 | 18 | 11 | 1 | 18.499 |

| | | | | | |
|---|---|---|---|---|---|
| LONGITUDE OF NADIR POINT | = | -1.1065331 | DEG | LATITUDE OF NADIR POINT | = 1.0178160 DEG |
| LONG OF CAMERA AXIS INTERSECT | = | -1.2089366 | DEG | LATI OF CAMERA AXIS INTERSECT | = 0.7775854 DEG |
| SPACECRAFT RADIUS | = | 1783.2297974 | KM | SPACECRAFT ALTITUDE | = 45.1398010 KM |
| MEAN ALTITUDE RATE | = | -0.0361342 | KM/SEC | TIME FROM PERIAPSIS | = -69.4206953 SEC |
| HORIZONTAL VELOCITY | = | 1.9169923 | KM/SEC | TRUE ANOMALY | = 355.7200928 DEG |
| SCALE FACTOR (HIGH) | = | 0.0133050 | M/KM | TILT DISTANCE (HIGH) | = 107.0104132 MM |
| SCALE FACTOR (LOW) | = | 0.0017449 | M/KM | TILT DISTANCE (LOW) | = 14.0341525 MM |
| IMAGE MOTION COMPENSATION (V/H) | = | 0.0418165 | RAD/SEC | SWING ANGLE | = 2.0508093 DEG |
| EMISSION ANGLE | = | 10.2111224 | DEG | INCIDENCE ANGLE | = 75.0473337 DEG |
| PHASE ANGLE | = | 71.5606632 | DEG | NORTH DEVIATION ANGLE | = 338.6337509 DEG |
| TILT ANGLE | = | 9.9499769 | DEG | RESOLUTION CONSTANT | = 0.9948895 MTR |
| TILT AZIMUTH | = | 203.0868721 | DEG | SUN AZIMUTH AT PRINCIPAL GND PT | = 91.7310104 DEG |
| SUN ANGLE AT NADIR | = | 74.9523792 | DEG | SUN ARC AT NADIR | = 2273.7099304 KM |
| LONGITUDE DISTANCE TO TARGET | = | 0.2264670 | DEG | LATITUDE DISTANCE TO TARGET | = 0.1308169 DEG |
| LONGITUDE ARC LENGTH TO TARGET | = | 6.8699641 | KM | LATITUDE ARC LENGTH TO TARGET | = 3.0582927 KM |
| FORWARD OVERLAP RATIO | = | 7.7064244 | PCT | SIDE OVERLAP RATIO | = 0. PCT |
| TIME BETWEEN PHOTOS | = | 2.0000696 | SEC | ALPHA | = 3.2655427 DEG. |

| | X | Y | Z | MAGNITUDE (KM) |
|---|---|---|---|---|
| DIRECTION COSINES TO TARGET | -0.98778949 | -0.13100790 | -0.08431408 | 45.77781200 |
| CAMERA AXIS | -0.98310546 | -0.04877883 | -0.17642074 | 45.84744263 |
| C1 | -0.99802414 | 0.05642514 | -0.02764073 | 45.17405701 |
| C2 | -0.93370763 | -0.06951832 | -0.35122252 | 48.19415283 |
| C3 | -0.93532556 | -0.15235233 | -0.31930371 | 48.22320557 |
| C4 | -0.99964207 | -0.02640887 | 0.00427806 | 45.19953918 |

| | X | Y | Z | X DOT | Y DOT | Z DOT |
|---|---|---|---|---|---|---|
| STATE VECTOR (1950.0) | -497.9421158 | -1592.8324738 | -628.3684235 | 1.7369086 | -0.1912128 | -0.7891464 |

LONG -0.5475 DEG
LATI 1.1465 DEG

LONG -0.9279 DEG
LATI -0.0546 DEG

* 38.21824 KM *
(1) (2)

LOW RESOLUTION

29.45353 KM 34.14435 KM

(4) (3)
* 38.39751 KM *

LONG -1.4533 DEG
LATI 1.4968 DEG

LONG -1.9799 DEG
LATI 0.3457 DEG

LONG -1.0512 DEG
LATI 1.0031 DEG

LONG -1.2456 DEG
LATI 0.4862 DEG

* 16.75160 KM *
(1) (2)

HIGH RESOLUTION

4.01202 KM 4.28034 KM

(4) (3)
* 16.76170 KM *

LONG -1.1746 DEG
LATI 1.0506 DEG

LONG -1.3774 DEG
LATI 0.5366 DEG

LOW RESOLUTION 98

| INDEX | LONGITUDE | LATITUDE |
|---|---|---|
| 1 | -0.5475250 | 1.1465369 |
| 2 | -0.5805217 | 1.0435931 |
| 3 | -0.6127670 | 0.9427582 |
| 4 | -0.6446128 | 0.8429563 |
| 5 | -0.6763902 | 0.7431570 |
| 6 | -0.7084204 | 0.6423298 |
| 7 | -0.7410482 | 0.5393988 |
| 8 | -0.7746322 | 0.4331971 |
| 9 | -0.8095857 | 0.3224088 |
| 10 | -0.8463800 | 0.2054982 |
| 11 | -0.8855784 | 0.0806107 |
| 12 | -0.9278846 | -0.0545655 |
| 13 | -1.0285172 | -0.0156070 |
| 14 | -1.1258064 | 0.0219249 |
| 15 | -1.2206265 | 0.0583751 |
| 16 | -1.3137698 | 0.0940594 |
| 17 | -1.4059773 | 0.1292639 |
| 18 | -1.4979493 | 0.1642626 |
| 19 | -1.5903959 | 0.1993211 |
| 20 | -1.6840207 | 0.2347083 |
| 21 | -1.7795887 | 0.2706992 |
| 22 | -1.8779058 | 0.3075967 |
| 23 | -1.9798874 | 0.3457254 |
| 24 | -1.9202154 | 0.4750183 |
| 25 | -1.8651744 | 0.5945287 |
| 26 | -1.8137362 | 0.7064541 |
| 27 | -1.7650609 | 0.8125611 |
| 28 | -1.7184687 | 0.9143181 |
| 29 | -1.6733724 | 1.0129785 |
| 30 | -1.6292528 | 1.1096607 |
| 31 | -1.5856421 | 1.2053918 |
| 32 | -1.5420859 | 1.3011630 |
| 33 | -1.4981337 | 1.3979621 |
| 34 | -1.4533174 | 1.4968257 |
| 35 | -1.3658705 | 1.4628557 |
| 36 | -1.2814630 | 1.4300990 |
| 37 | -1.1993368 | 1.3982558 |
| 38 | -1.1188020 | 1.3670572 |
| 39 | -1.0392235 | 1.3362548 |
| 40 | -0.9599933 | 1.3056154 |
| 41 | -0.8805138 | 1.2749069 |
| 42 | -0.8001840 | 1.2438952 |
| 43 | -0.7183720 | 1.2123406 |
| 44 | -0.6344016 | 1.1799835 |

HIGH RESOLUTION 98

| INDEX | LONGITUDE | LATITUDE |
|---|---|---|
| 1 | -1.0512071 | 1.0030850 |
| 2 | -1.0681391 | 0.9580928 |
| 3 | -1.0851019 | 0.9130161 |
| 4 | -1.1021295 | 0.8677533 |
| 5 | -1.1192631 | 0.8222079 |
| 6 | -1.1365435 | 0.7762749 |
| 7 | -1.1540048 | 0.7298475 |
| 8 | -1.1716882 | 0.6828166 |
| 9 | -1.1896448 | 0.6350659 |
| 10 | -1.2079155 | 0.5864699 |
| 11 | -1.2265483 | 0.5368990 |
| 12 | -1.2456011 | 0.4862104 |
| 13 | -1.2575846 | 0.4908003 |
| 14 | -1.2695648 | 0.4953868 |
| 15 | -1.2815415 | 0.4999707 |
| 16 | -1.2935115 | 0.5045520 |
| 17 | -1.3054848 | 0.5091325 |
| 18 | -1.3174581 | 0.5137113 |
| 19 | -1.3294348 | 0.5182893 |
| 20 | -1.3414150 | 0.5228689 |
| 21 | -1.3533985 | 0.5274494 |
| 22 | -1.3653924 | 0.5320316 |
| 23 | -1.3773964 | 0.5366164 |
| 24 | -1.3575035 | 0.5870180 |
| 25 | -1.3380511 | 0.6363107 |
| 26 | -1.3189846 | 0.6846334 |
| 27 | -1.3002494 | 0.7321186 |
| 28 | -1.2818011 | 0.7788883 |
| 29 | -1.2635884 | 0.8250570 |
| 30 | -1.2455738 | 0.8707381 |
| 31 | -1.2277094 | 0.9160334 |
| 32 | -1.2099577 | 0.9610486 |
| 33 | -1.1922812 | 1.0058802 |
| 34 | -1.1746422 | 1.0506282 |
| 35 | -1.1634032 | 1.0462996 |
| 36 | -1.1521709 | 1.0419735 |
| 37 | -1.1409489 | 1.0376509 |
| 38 | -1.1297269 | 1.0333299 |
| 39 | -1.1185118 | 1.0290098 |
| 40 | -1.1073000 | 1.0246914 |
| 41 | -1.0960848 | 1.0203713 |
| 42 | -1.0848731 | 1.0160521 |
| 43 | -1.0736545 | 1.0117320 |
| 44 | -1.0624325 | 1.0074102 |

**********
* PHOTO FRAME NUMBER 6 OF 8 *
**********

## FRAME 99

| | YEAR | MONTH | DAY | HOUR | MINUTE | SECOND |
|---|---|---|---|---|---|---|
| GMT | 67 | 2 | 18 | 11 | 1 | 20.499 |

| | | | | | |
|---|---|---|---|---|---|
| LONGITUDE OF NADIR POINT | = | -0.9918289 | DEG | LATITUDE OF NADIR POINT | = | 0.9736161 | DEG |
| LONG OF CAMERA AXIS INTERSECT | = | -1.0910920 | DEG | LATI OF CAMERA AXIS INTERSECT | = | 0.7326249 | DEG |
| SPACECRAFT RADIUS | = | 1783.1585541 | KM | SPACECRAFT ALTITUDE | = | 45.0685577 | KM |
| MEAN ALTITUDE RATE | = | -0.0350977 | KM/SEC | TIME FROM PERIAPSIS | = | -67.4240685 | SEC |
| HORIZONTAL VELOCITY | = | 1.9170687 | KM/SEC | TRUE ANOMALY | = | 355.8430786 | DEG |
| SCALE FACTOR (HIGH) | = | 0.0133262 | M/KM | TILT DISTANCE (HIGH) | = | 106.9699812 | MM |
| SCALE FACTOR (LOW) | = | 0.0017477 | M/KM | TILT DISTANCE (LOW) | = | 14.0288500 | MM |
| IMAGE MOTION COMPENSATION (V/H) | = | 0.0418834 | RAD/SEC | SWING ANGLE | = | 1.3381565 | DEG |
| EMISSION ANGLE | = | 10.2069315 | DEG | INCIDENCE ANGLE | = | 74.9279213 | DEG |
| PHASE ANGLE | = | 71.5606642 | DEG | NORTH DEVIATION ANGLE | = | 338.6290169 | DEG |
| TILT ANGLE | = | 9.9462925 | DEG | RESOLUTION CONSTANT | = | 0.9933071 | MTR |
| TILT AZIMUTH | = | 202.3869305 | DEG | SUN AZIMUTH AT PRINCIPAL GND PT | = | 91.7214699 | DEG |
| SUN ANGLE AT NADIR | = | 74.8360863 | DEG | SUN ARC AT NADIR | = | 2270.1821289 | KM |
| LONGITUDE DISTANCE TO TARGET | = | 0.3411711 | DEG | LATITUDE DISTANCE TO TARGET | = | 0.0566161 | DEG |
| LONGITUDE ARC LENGTH TO TARGET | = | 10.3495589 | KM | LATITUDE ARC LENGTH TO TARGET | = | 1.7174725 | KM |
| FORWARD OVERLAP RATIO | = | 7.5556279 | PCT | SIDE OVERLAP RATIO | = | 0. | PCT |
| TIME BETWEEN PHOTOS | = | 2.0000696 | SEC | ALPHA | = | 3.1426013 | DEG. |

| | X | Y | Z | MAGNITUDE (KM) |
|---|---|---|---|---|
| DIRECTION COSINES TO TARGET | -0.97695280 | -0.20660979 | -0.05362486 | 46.30410290 |
| CAMERA AXIS | -0.98310571 | -0.04877403 | -0.17642066 | 45.77452087 |
| C1 | -0.99802388 | 0.05643002 | -0.02764065 | 45.10667419 |
| C2 | -0.93370800 | -0.06951375 | -0.35122245 | 48.12240601 |
| C3 | -0.93532634 | -0.15234775 | -0.31930364 | 48.14134216 |
| C4 | -0.99964221 | -0.02640399 | 0.00427814 | 45.12326050 |

| | X | Y | Z | X DOT | Y DOT | Z DOT |
|---|---|---|---|---|---|---|
| STATE VECTOR (1950.0) | -494.4674377 | -1593.2121429 | -629.9456253 | 1.7377673 | -0.1884570 | -0.7880566 |

LONG -0.4303 DEG
LATI 1.1011 DEG

LONG -0.8104 DEG
LATI -0.0991 DEG

* 38.18809 KM *
(1) (2)

LOW RESOLUTION

29.40620 KM 34.08897 KM

(4) (3)
* 38.30484 KM *

LONG -1.3348 DEG
LATI 1.4504 DEG

LONG -1.8601 DEG
LATI 0.3020 DEG

LONG -0.9336 DEG
LATI 0.9578 DEG

LONG -1.1277 DEG
LATI 0.4417 DEG

* 16.72667 KM *
(1) (2)

HIGH RESOLUTION

4.00560 KM 4.27346 KM

(4) (3)
* 16.73325 KM *

LONG -1.0568 DEG
LATI 1.0052 DEG

LONG -1.2593 DEG
LATI 0.4921 DEG

LOW RESOLUTION 99

| INDEX | LONGITUDE | LATITUDE |
|---|---|---|
| 1 | -0.4303224 | 1.1010581 |
| 2 | -0.4632883 | 0.9982057 |
| 3 | -0.4955063 | 0.8974578 |
| 4 | -0.5273247 | 0.7977405 |
| 5 | -0.5590715 | 0.6980248 |
| 6 | -0.5910743 | 0.5972787 |
| 7 | -0.6236714 | 0.4944288 |
| 8 | -0.6572281 | 0.3883091 |
| 9 | -0.6921509 | 0.2776036 |
| 10 | -0.7289144 | 0.1607775 |
| 11 | -0.7680787 | 0.0359780 |
| 12 | -0.8103507 | -0.0991060 |
| 13 | -0.9109184 | -0.0600075 |
| 14 | -1.0081154 | -0.0223543 |
| 15 | -1.1028160 | 0.0142085 |
| 16 | -1.1958158 | 0.0499884 |
| 17 | -1.2878492 | 0.0852792 |
| 18 | -1.3796231 | 0.1203531 |
| 19 | -1.4718409 | 0.1554773 |
| 20 | -1.5652095 | 0.1909200 |
| 21 | -1.6604804 | 0.2269595 |
| 22 | -1.7584663 | 0.2638929 |
| 23 | -1.8600688 | 0.3020489 |
| 24 | -1.8005539 | 0.4310157 |
| 25 | -1.7456597 | 0.5502281 |
| 26 | -1.6943513 | 0.6618786 |
| 27 | -1.6457989 | 0.7677286 |
| 28 | -1.5993229 | 0.8692389 |
| 29 | -1.5543359 | 0.9676653 |
| 30 | -1.5103256 | 1.0641178 |
| 31 | -1.4668172 | 1.1596235 |
| 32 | -1.4233636 | 1.2551710 |
| 33 | -1.3795138 | 1.3517465 |
| 34 | -1.3347999 | 1.4503821 |
| 35 | -1.2475955 | 1.4165505 |
| 36 | -1.1633998 | 1.3839175 |
| 37 | -1.0814580 | 1.3521862 |
| 38 | -1.0010803 | 1.3210883 |
| 39 | -0.9216384 | 1.2903789 |
| 40 | -0.8425209 | 1.2598232 |
| 41 | -0.7631370 | 1.2291907 |
| 42 | -0.6828823 | 1.1982491 |
| 43 | -0.6011249 | 1.1667576 |
| 44 | -0.5171887 | 1.1344551 |

HIGH RESOLUTION 99

| INDEX | LONGITUDE | LATITUDE |
|---|---|---|
| 1 | -0.9336049 | 0.9577581 |
| 2 | -0.9505130 | 0.9128343 |
| 3 | -0.9674519 | 0.8678250 |
| 4 | -0.9844556 | 0.8226305 |
| 5 | -1.0015653 | 0.7771526 |
| 6 | -1.0188183 | 0.7312887 |
| 7 | -1.0362558 | 0.6849322 |
| 8 | -1.0539152 | 0.6379712 |
| 9 | -1.0718445 | 0.5902905 |
| 10 | -1.0900879 | 0.5417689 |
| 11 | -1.1086968 | 0.4922705 |
| 12 | -1.1277189 | 0.4416580 |
| 13 | -1.1396853 | 0.4462521 |
| 14 | -1.1516416 | 0.4508420 |
| 15 | -1.1635944 | 0.4554293 |
| 16 | -1.1755473 | 0.4600132 |
| 17 | -1.1874967 | 0.4645963 |
| 18 | -1.1994461 | 0.4691785 |
| 19 | -1.2113989 | 0.4737598 |
| 20 | -1.2233517 | 0.4783420 |
| 21 | -1.2353148 | 0.4829242 |
| 22 | -1.2472813 | 0.4875090 |
| 23 | -1.2592580 | 0.4920946 |
| 24 | -1.2393993 | 0.5424109 |
| 25 | -1.2199810 | 0.5916182 |
| 26 | -1.2009453 | 0.6398589 |
| 27 | -1.1822408 | 0.6872622 |
| 28 | -1.1638232 | 0.7339516 |
| 29 | -1.1456413 | 0.7800426 |
| 30 | -1.1276540 | 0.8256444 |
| 31 | -1.1098203 | 0.8708636 |
| 32 | -1.0920994 | 0.9158011 |
| 33 | -1.0744502 | 0.9605568 |
| 34 | -1.0568386 | 1.0052280 |
| 35 | -1.0456200 | 1.0009079 |
| 36 | -1.0344082 | 0.9965886 |
| 37 | -1.0232033 | 0.9922728 |
| 38 | -1.0120052 | 0.9879595 |
| 39 | -1.0008071 | 0.9836463 |
| 40 | -0.9896124 | 0.9793330 |
| 41 | -0.9784178 | 0.9750206 |
| 42 | -0.9672197 | 0.9707082 |
| 43 | -0.9560216 | 0.9663932 |
| 44 | -0.9448166 | 0.9620774 |

**********
* PHOTO FRAME NUMBER 7 OF 8 *
********** FRAME 100

| | YEAR | MONTH | DAY | HOUR | MINUTE | SECOND |
|---|---|---|---|---|---|---|
| GMT | 67 | 2 | 18 | 11 | 1 | 22.599 |

| | | | | | |
|---|---|---|---|---|---|
| LONGITUDE OF NADIR POINT | = | -0.8714447 DEG | LATITUDE OF NADIR POINT | = | 0.9272195 DEG |
| LONG OF CAMERA AXIS INTERSECT | = | -0.9674280 DEG | LATI OF CAMERA AXIS INTERSECT | = | 0.6854197 DEG |
| SPACECRAFT RADIUS | = | 1783.0860291 KM | SPACECRAFT ALTITUDE | = | 44.9960327 KM |
| MEAN ALTITUDE RATE | = | -0.0340096 KM/SEC | TIME FROM PERIAPSIS | = | -65.3286438 SEC |
| HORIZONTAL VELOCITY | = | 1.9171464 KM/SEC | TRUE ANOMALY | = | 355.9721603 DEG |
| SCALE FACTOR (HIGH) | = | 0.0133478 M/KM | TILT DISTANCE (HIGH) | = | 106.9454880 MM |
| SCALE FACTOR (LOW) | = | 0.0017505 M/KM | TILT DISTANCE (LOW) | = | 14.0256377 MM |
| IMAGE MOTION COMPENSATION (V/H) | = | 0.0419515 RAD/SEC | SWING ANGLE | = | 0.5897304 DEG |
| EMISSION ANGLE | = | 10.2042213 DEG | INCIDENCE ANGLE | = | 74.8026123 DEG |
| PHASE ANGLE | = | 71.5606642 DEG | NORTH DEVIATION ANGLE | = | 338.6242485 DEG |
| TILT ANGLE | = | 9.9440606 DEG | RESOLUTION CONSTANT | = | 0.9917012 MIR |
| TILT AZIMUTH | = | 201.6517487 DEG | SUN AZIMUTH AT PRINCIPAL GND PT | = | 91.7112455 DEG |
| SUN ANGLE AT NADIR | = | 74.7140360 DEG | SUN ARC AT NADIR | = | 2266.4796753 KM |
| LONGITUDE DISTANCE TO TARGET | = | 0.4615553 DEG | LATITUDE DISTANCE TO TARGET | = | 0.0102195 DEG |
| LONGITUDE ARC LENGTH TO TARGET | = | 14.0014615 KM | LATITUDE ARC LENGTH TO TARGET | = | 0.3100128 KM |
| FORWARD OVERLAP RATIO | = | 2.8201469 PCT | SIDE OVERLAP RATIO | = | 0. PCT |
| TIME BETWEEN PHOTOS | = | 2.0998478 SEC | ALPHA | = | 3.0135511 DEG. |

| | X | Y | Z | MAGNITUDE (KM) |
|---|---|---|---|---|
| DIRECTION COSINES TO TARGET | -0.95910681 | -0.28218778 | -0.02200438 | 47.17854881 |
| CAMERA AXIS | -0.98310599 | -0.04876892 | -0.17642059 | 45.70051575 |
| C1 | -0.99802358 | 0.05643518 | -0.02764057 | 45.03840637 |
| C2 | -0.93370840 | -0.06950890 | -0.35122238 | 48.04977417 |
| C3 | -0.93532714 | -0.15234289 | -0.31930358 | 48.05809021 |
| C4 | -0.99964233 | -0.02639881 | 0.00427821 | 45.04571533 |

| | X | Y | Z | X DOT | Y DOT | Z DOT |
|---|---|---|---|---|---|---|
| STATE VECTOR (1950.0) | -490.8189240 | -1593.6046753 | -631.5985489 | 1.7386622 | -0.1855637 | -0.7869099 |

LONG -0.3073 DEG
LATI 1.0533 DEG

LONG -0.6870 DEG
LATI -0.1459 DEG

(1) • 38.15852 KM • (2)

LOW RESOLUTION

29.35834 KM 34.03305 KM

(4) • 38.20987 KM • (3)

LONG -1.2104 DEG
LATI 1.4017 DEG

LONG -1.7344 DEG
LATI 0.2562 DEG

LONG -0.8102 DEG
LATI 0.9102 DEG

LONG -1.0040 DEG
LATI 0.3949 DEG

(1) • 16.70142 KM • (2)

HIGH RESOLUTION

3.99910 KM 4.26651 KM

(4) • 16.70431 KM • (3)

LONG -0.9332 DEG
LATI 0.9576 DEG

LONG -1.1353 DEG
LATI 0.4453 DEG

LOW RESOLUTION 100

| INDEX | LONGITUDE | LATITUDE |
|---|---|---|
| 1 | -0.3072970 | 1.0533304 |
| 2 | -0.3402322 | 0.9505685 |
| 3 | -0.3724195 | 0.8499069 |
| 4 | -0.4042072 | 0.7502741 |
| 5 | -0.4359266 | 0.6506387 |
| 6 | -0.4679021 | 0.5499728 |
| 7 | -0.5004719 | 0.4472024 |
| 8 | -0.5339978 | 0.3411620 |
| 9 | -0.5688933 | 0.2305377 |
| 10 | -0.6056226 | 0.1137944 |
| 11 | -0.6447562 | -0.0109212 |
| 12 | -0.6869907 | -0.1459159 |
| 13 | -0.7875003 | -0.1066679 |
| 14 | -0.8846051 | -0.0688825 |
| 15 | -0.9791861 | -0.0322060 |
| 16 | -1.0720391 | 0.0036791 |
| 17 | -1.1638950 | 0.0390627 |
| 18 | -1.2554673 | 0.0742177 |
| 19 | -1.3474529 | 0.1094111 |
| 20 | -1.4405552 | 0.1449144 |
| 21 | -1.5355255 | 0.1810051 |
| 22 | -1.6331665 | 0.2179804 |
| 23 | -1.7343797 | 0.2561662 |
| 24 | -1.6750287 | 0.3847983 |
| 25 | -1.6202814 | 0.5037059 |
| 26 | -1.5691096 | 0.6150730 |
| 27 | -1.5206835 | 0.7206592 |
| 28 | -1.4743236 | 0.8219185 |
| 29 | -1.4294527 | 0.9201025 |
| 30 | -1.3855482 | 1.0163210 |
| 31 | -1.3421492 | 1.1115970 |
| 32 | -1.2987980 | 1.2069149 |
| 33 | -1.2550541 | 1.3032598 |
| 34 | -1.2104461 | 1.4016641 |
| 35 | -1.1234910 | 1.3679750 |
| 36 | -1.0395104 | 1.3354693 |
| 37 | -0.9577564 | 1.3038532 |
| 38 | -0.8775393 | 1.2728604 |
| 39 | -0.7982339 | 1.2422457 |
| 40 | -0.7192326 | 1.2117763 |
| 41 | -0.6399443 | 1.1812223 |
| 42 | -0.5597647 | 1.1503515 |
| 43 | -0.4780620 | 1.1189241 |
| 44 | -0.3941565 | 1.0866797 |

HIGH RESOLUTION 100

| INDEX | LONGITUDE | LATITUDE |
|---|---|---|
| 1 | -0.8101834 | 0.9101825 |
| 2 | -0.8270676 | 0.8653278 |
| 3 | -0.8439826 | 0.8203860 |
| 4 | -0.8609624 | 0.7752615 |
| 5 | -0.8780481 | 0.7298535 |
| 6 | -0.8952773 | 0.6840579 |
| 7 | -0.9126874 | 0.6377706 |
| 8 | -0.9303230 | 0.5908822 |
| 9 | -0.9482249 | 0.5432741 |
| 10 | -0.9664410 | 0.4948250 |
| 11 | -0.9850225 | 0.4454035 |
| 12 | -1.0040173 | 0.3948669 |
| 13 | -1.0159599 | 0.3994645 |
| 14 | -1.0278956 | 0.4040586 |
| 15 | -1.0398280 | 0.4086485 |
| 16 | -1.0517569 | 0.4132375 |
| 17 | -1.0636824 | 0.4178240 |
| 18 | -1.0756079 | 0.4224088 |
| 19 | -1.0875368 | 0.4269935 |
| 20 | -1.0994692 | 0.4315774 |
| 21 | -1.1114049 | 0.4361631 |
| 22 | -1.1233475 | 0.4407495 |
| 23 | -1.1352969 | 0.4453386 |
| 24 | -1.1154723 | 0.4955669 |
| 25 | -1.0960848 | 0.5446879 |
| 26 | -1.0770832 | 0.5928442 |
| 27 | -1.0584095 | 0.6401654 |
| 28 | -1.0400226 | 0.6867729 |
| 29 | -1.0218714 | 0.7327845 |
| 30 | -1.0039148 | 0.7783069 |
| 31 | -0.9861085 | 0.8234467 |
| 32 | -0.9684184 | 0.8683066 |
| 33 | -0.9507999 | 0.9129854 |
| 34 | -0.9332156 | 0.9575788 |
| 35 | -0.9220175 | 0.9532664 |
| 36 | -0.9108262 | 0.9489549 |
| 37 | -0.8996418 | 0.9446467 |
| 38 | -0.8884607 | 0.9403386 |
| 39 | -0.8772831 | 0.9360322 |
| 40 | -0.8661055 | 0.9317266 |
| 41 | -0.8549279 | 0.9274210 |
| 42 | -0.8437503 | 0.9231137 |
| 43 | -0.8325659 | 0.9188056 |
| 44 | -0.8213780 | 0.9144957 |

**********
* PHOTO FRAME NUMBER 8 OF 8 *
**********

## FRAME 101

| | YEAR | MONTH | DAY | HOUR | MINUTE | SECOND |
|---|---|---|---|---|---|---|
| GMT | 67 | 2 | 18 | 11 | 1 | 24.599 |

| | | | | | |
|---|---|---|---|---|---|
| LONGITUDE OF NADIR POINT | = | -0.7567253 | DEG | LATITUDE OF NADIR POINT | = 0.8830043 DEG |
| LONG OF CAMERA AXIS INTERSECT | = | -0.8496038 | DEG | LATI OF CAMERA AXIS INTERSECT | = 0.6404250 DEG |
| SPACECRAFT RADIUS | = | 1783.0190430 | KM | SPACECRAFT ALTITUDE | = 44.9290466 KM |
| MEAN ALTITUDE RATE | = | -0.0329726 | KM/SEC | TIME FROM PERIAPSIS | = -63.3320003 SEC |
| HORIZONTAL VELOCITY | = | 1.9172181 | KM/SEC | TRUE ANOMALY | = 356.0951614 DEG |
| SCALE FACTOR (HIGH) | = | 0.0133677 | M/KM | TILT DISTANCE (HIGH) | = 136.9391937 MM |
| SCALE FACTOR (LOW) | = | 0.0017531 | M/KM | TILT DISTANCE (LOW) | = 14.0248123 MM |
| IMAGE MOTION COMPENSATION (V/H) | = | 0.0420142 | RAD/SEC | SWING ANGLE | = 359.8763428 DEG |
| EMISSION ANGLE | = | 10.2032402 | DEG | INCIDENCE ANGLE | = 74.6832275 DEG |
| PHASE ANGLE | = | 71.5626651 | DEG | NORTH DEVIATION ANGLE | = 338.6198883 DEG |
| TILT ANGLE | = | 9.9434870 | DEG | RESOLUTION CONSTANT | = 0.9902224 MTR |
| TILT AZIMUTH | = | 200.9508991 | DEG | SUN AZIMUTH AT PRINCIPAL GND PT | = 91.7013035 DEG |
| SUN ANGLE AT NADIR | = | 74.5977411 | DEG | SUN ARC AT NADIR | = 2262.9518127 KM |
| LONGITUDE DISTANCE TO TARGET | = | 0.5762747 | DEG | LATITUDE DISTANCE TO TARGET | = -0.0339957 DEG |
| LONGITUDE ARC LENGTH TO TARGET | = | 17.4815195 | KM | LATITUDE ARC LENGTH TO TARGET | = -1.0312737 KM |
| FORWARD OVERLAP RATIO | = | 7.2627472 | PCT | SIDE OVERLAP RATIO | = 0. PCT |
| TIME BETWEEN PHOTOS | = | 2.0000696 | SEC | ALPHA | = 2.8905664 DEG. |

| | X | Y | Z | MAGNITUDE (KM) |
|---|---|---|---|---|
| DIRECTION COSINES TO TARGET | -0.93690052 | -0.34952573 | 0.00701278 | 48.30259895 |
| CAMERA AXIS | -0.98310623 | -0.04876411 | -0.17642052 | 45.63237000 |
| C1 | -0.99802331 | 0.05644007 | -0.02764050 | 44.97570801 |
| C2 | -0.93370876 | -0.06950432 | -0.35122231 | 47.98303223 |
| C3 | -0.93532791 | -0.15233831 | -0.31930352 | 47.98129272 |
| C4 | -0.99964247 | -0.02639392 | 0.00427828 | 44.97416687 |

| | X | Y | Z | X DOT | Y DOT | Z DOT |
|---|---|---|---|---|---|---|
| STATE VECTOR (1950.0) | -487.3407516 | -1593.9730377 | -633.1712723 | 1.7395087 | -0.1828060 | -0.7858143 |

LONG -0.1900 DEG
LATI 1.0079 DEG

LONG -0.5694 DEG
LATI -0.1906 DEG

(1) * 38.13230 KM * (2)

LOW RESOLUTION

29.31445 KM 33.98186 KM

(4) * 38.12154 KM * (3)

LONG -1.0920 DEG
LATI 1.3553 DEG

LONG -1.6147 DEG
LATI 0.2124 DEG

LONG -0.6926 DEG
LATI 0.8648 DEG

LONG -0.8862 DEG
LATI 0.3503 DEG

(1) * 16.67822 KM * (2)

HIGH RESOLUTION

3.99313 KM 4.26013 KM

(4) * 16.67762 KM * (3)

LONG -0.8154 DEG
LATI 0.9122 DEG

LONG -1.0172 DEG
LATI 0.4008 DEG

LOW RESOLUTION 101

| INDEX | LONGITUDE | LATITUDE |
|---|---|---|
| 1 | -0.1900398 | 1.0078559 |
| 2 | -0.2229476 | 0.9051751 |
| 3 | -0.2551110 | 0.8045903 |
| 4 | -0.2868748 | 0.7050318 |
| 5 | -0.3185668 | 0.6054689 |
| 6 | -0.3505151 | 0.5048739 |
| 7 | -0.3830609 | 0.4021743 |
| 8 | -0.4165596 | 0.2962057 |
| 9 | -0.4514277 | 0.1856522 |
| 10 | -0.4881297 | 0.0689815 |
| 11 | -0.5272325 | -0.0556609 |
| 12 | -0.5694397 | -0.1905759 |
| 13 | -0.6698947 | -0.1511837 |
| 14 | -0.7669175 | -0.1132719 |
| 15 | -0.8613893 | -0.0764827 |
| 16 | -0.9541057 | -0.0404987 |
| 17 | -1.0458044 | -0.0050266 |
| 18 | -1.1371889 | 0.0302082 |
| 19 | -1.2289559 | 0.0654708 |
| 20 | -1.3218123 | 0.1010339 |
| 21 | -1.4165027 | 0.1371724 |
| 22 | -1.5138226 | 0.1741877 |
| 23 | -1.6146704 | 0.2124044 |
| 24 | -1.5554697 | 0.3407248 |
| 25 | -1.5008623 | 0.4593490 |
| 26 | -1.4498135 | 0.5704540 |
| 27 | -1.4015070 | 0.6757926 |
| 28 | -1.3552598 | 0.7768187 |
| 29 | -1.3104913 | 0.8747790 |
| 30 | -1.2666927 | 0.9707799 |
| 31 | -1.2233893 | 1.0658408 |
| 32 | -1.1801371 | 1.1609469 |
| 33 | -1.1364888 | 1.2570801 |
| 34 | -1.0919833 | 1.3552658 |
| 35 | -1.0052570 | 1.3217099 |
| 36 | -0.9214779 | 1.2893245 |
| 37 | -0.8398947 | 1.2578160 |
| 38 | -0.7598278 | 1.2269214 |
| 39 | -0.6806488 | 1.1963955 |
| 40 | -0.6017533 | 1.1660055 |
| 41 | -0.5225504 | 1.1355258 |
| 42 | -0.4424357 | 1.1047208 |
| 43 | -0.3607808 | 1.0733531 |
| 44 | -0.2768993 | 1.0411599 |

HIGH RESOLUTION 101

| INDEX | LONGITUDE | LATITUDE |
|---|---|---|
| 1 | -0.6925846 | 0.8648462 |
| 2 | -0.7094449 | 0.8200538 |
| 3 | -0.7263360 | 0.7751761 |
| 4 | -0.7432953 | 0.7301148 |
| 5 | -0.7603571 | 0.6847691 |
| 6 | -0.7775624 | 0.6390376 |
| 7 | -0.7949486 | 0.5928169 |
| 8 | -0.8125603 | 0.5459925 |
| 9 | -0.8304383 | 0.4984518 |
| 10 | -0.8486305 | 0.4500702 |
| 11 | -0.8671847 | 0.4007169 |
| 12 | -0.8861556 | 0.3502504 |
| 13 | -0.8980811 | 0.3548522 |
| 14 | -0.9099963 | 0.3594506 |
| 15 | -0.9219082 | 0.3640440 |
| 16 | -0.9338132 | 0.3686364 |
| 17 | -0.9457182 | 0.3732263 |
| 18 | -0.9576232 | 0.3778145 |
| 19 | -0.9695283 | 0.3824018 |
| 20 | -0.9814367 | 0.3869891 |
| 21 | -0.9933520 | 0.3915773 |
| 22 | -1.0052706 | 0.3961663 |
| 23 | -1.0171961 | 0.4007571 |
| 24 | -0.9974023 | 0.4509035 |
| 25 | -0.9780455 | 0.4999459 |
| 26 | -0.9590747 | 0.5480253 |
| 27 | -0.9404317 | 0.5952698 |
| 28 | -0.9220721 | 0.6418030 |
| 29 | -0.9039482 | 0.6877403 |
| 30 | -0.8860190 | 0.7331901 |
| 31 | -0.8682400 | 0.7782582 |
| 32 | -0.8505771 | 0.8230463 |
| 33 | -0.8329860 | 0.8676526 |
| 34 | -0.8154289 | 0.9121752 |
| 35 | -0.8042479 | 0.9078687 |
| 36 | -0.7930772 | 0.9035640 |
| 37 | -0.7819098 | 0.8992627 |
| 38 | -0.7707459 | 0.8949614 |
| 39 | -0.7595853 | 0.8906618 |
| 40 | -0.7484248 | 0.8863622 |
| 41 | -0.7372643 | 0.8820617 |
| 42 | -0.7261037 | 0.8777613 |
| 43 | -0.7149364 | 0.8734591 |
| 44 | -0.7037622 | 0.8691544 |

**********
* PHOTO FRAME NUMBER 1 OF 1 *
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## FRAME 102

| | YEAR | MONTH | DAY | HOUR | MINUTE | SECOND |
|---|---|---|---|---|---|---|
| GMT | 67 | 2 | 18 | 14 | 28 | 2.599 |

| | | | | | |
|---|---|---|---|---|---|
| LONGITUDE OF NADIR POINT | = | -9.1227188 | DEG | LATITUDE OF NADIR POINT | = 3.3613546 DEG |
| LONG OF CAMERA AXIS INTERSECT | = | -9.1274822 | DEG | LATI OF CAMERA AXIS INTERSECT | = 4.8819271 DEG |
| SPACECRAFT RADIUS | = | 1790.0484619 | KM | SPACECRAFT ALTITUDE | = 51.9584656 KM |
| MEAN ALTITUDE RATE | = | -0.0916913 | KM/SEC | TIME FROM PERIAPSIS | = -177.4835358 SEC |
| HORIZONTAL VELOCITY | = | 1.9096599 | KM/SEC | TRUE ANOMALY | = 349.0850754 DEG |
| SCALE FACTOR (HIGH) | = | 0.0087224 | M/KM | TILT DISTANCE (HIGH) | = 535.1742172 MM |
| SCALE FACTOR (LOW) | = | 0.0011439 | M/KM | TILT DISTANCE (LOW) | = 70.1867828 MM |
| IMAGE MOTION COMPENSATION (V/H) | = | 0.0267850 | RAD/SEC | SWING ANGLE | = 161.9056053 DEG |
| EMISSION ANGLE | = | 42.7821817 | DEG | INCIDENCE ANGLE | = 81.3545771 DEG |
| PHASE ANGLE | = | 82.0311499 | DEG | NORTH DEVIATION ANGLE | = 342.1521465 DEG |
| TILT ANGLE | = | 41.2616029 | DEG | RESOLUTION CONSTANT | = 1.5175878 MIR |
| TILT AZIMUTH | = | 359.8208466 | DEG | SUN AZIMUTH AT PRINCIPAL GND PT | = 92.2367353 DEG |
| SUN ANGLE AT NADIR | = | 81.2935410 | DEG | SUN ARC AT NADIR | = 2466.0715637 KM |
| LONGITUDE DISTANCE TO TARGET | = | -0.1227188 | DEG | LATITUDE DISTANCE TO TARGET | = -1.6386454 DEG |
| LONGITUDE ARC LENGTH TO TARGET | = | -3.7227234 | KM | LATITUDE ARC LENGTH TO TARGET | = -49.7089529 KM |
| FORWARD OVERLAP RATIO | = | 0. | PCT | SIDE OVERLAP RATIO | = 0. PCT |
| TIME BETWEEN PHOTOS | = | 0. | SEC | ALPHA | = -3.8229057 DEG. |

| | X | Y | Z | MAGNITUDE (KM) |
|---|---|---|---|---|
| DIRECTION COSINES TO TARGET | -0.74751758 | 0.17183025 | 0.64163216 | 72.51581669 |
| CAMERA AXIS | -0.77942715 | 0.12307249 | 0.61428534 | 69.93492126 |
| C1 | -0.65765802 | 0.20146576 | 0.72587704 | 83.35876465 |
| C2 | -0.87849247 | 0.12664455 | 0.46066491 | 60.81750488 |
| C3 | -0.87514321 | 0.04056540 | 0.48216059 | 62.18908691 |
| C4 | -0.65430877 | 0.11538662 | 0.74737272 | 86.00878143 |

| | X | Y | Z | X DOT | Y DOT | Z DOT |
|---|---|---|---|---|---|---|
| STATE VECTOR (1950.0) | -680.5648880 | -1564.7013397 | -541.1235199 | 1.6826255 | -0.3352276 | -0.8435654 |

LONG -7.6886 DEG
LATI 6.1211 DEG

(1) * 77.44620 KM * (2)

LONG -8.8043 DEG
LATI 3.8225 DEG

LOW RESOLUTION

90.19513 KM 36.72421 KM

(4) * 114.58643 KM * (3)

LONG -10.0405 DEG
LATI 7.9634 DEG

LONG -9.9619 DEG
LATI 4.1862 DEG

LONG -8.8614 DEG
LATI 5.4628 DEG

(1) * 33.76854 KM * (2)

LONG -9.1514 DEG
LATI 4.3877 DEG

HIGH RESOLUTION

7.97118 KM 5.62990 KM

(4) * 35.13393 KM * (3)

LONG -9.0937 DEG
LATI 5.5877 DEG

LONG -9.3257 DEG
LATI 4.4528 DEG

LOW RESOLUTION 102

| INDEX | LONGITUDE | LATITUDE |
|---|---|---|
| 1 | -7.6885799 | 6.1210626 |
| 2 | -7.8937315 | 5.7008497 |
| 3 | -8.0549614 | 5.3697904 |
| 4 | -8.1867397 | 5.0987037 |
| 5 | -8.2977644 | 4.8699572 |
| 6 | -8.3936466 | 4.6721627 |
| 7 | -8.4781873 | 4.4975744 |
| 8 | -8.5540810 | 4.3407021 |
| 9 | -8.6232980 | 4.1975063 |
| 10 | -8.6873345 | 4.0649256 |
| 11 | -8.7473650 | 3.9405606 |
| 12 | -8.8043288 | 3.8224743 |
| 13 | -8.9017888 | 3.8528413 |
| 14 | -8.9984018 | 3.8829907 |
| 15 | -9.0949022 | 3.9131528 |
| 16 | -9.1920240 | 3.9435539 |
| 17 | -9.2905153 | 3.9744332 |
| 18 | -9.3911718 | 4.0060425 |
| 19 | -9.4948643 | 4.0386575 |
| 20 | -9.6025593 | 4.0725873 |
| 21 | -9.7153702 | 4.1081922 |
| 22 | -9.8346082 | 4.1458940 |
| 23 | -9.9618512 | 4.1862023 |
| 24 | -9.9625957 | 4.3450666 |
| 25 | -9.9636441 | 4.5153090 |
| 26 | -9.9650717 | 4.7002612 |
| 27 | -9.9669977 | 4.9042397 |
| 28 | -9.9696001 | 5.1330356 |
| 29 | -9.9731483 | 5.3946788 |
| 30 | -9.9780695 | 5.7007712 |
| 31 | -9.9851012 | 6.0688953 |
| 32 | -9.9955513 | 6.5274008 |
| 33 | -10.0120429 | 7.1259934 |
| 34 | -10.0405452 | 7.9633968 |
| 35 | -9.7296214 | 7.6988499 |
| 36 | -9.4543681 | 7.4702743 |
| 37 | -9.2062240 | 7.2686163 |
| 38 | -8.9790450 | 7.0875804 |
| 39 | -8.7682450 | 6.9225990 |
| 40 | -8.5702788 | 6.7702464 |
| 41 | -8.3823153 | 6.6278720 |
| 42 | -8.2020291 | 6.4933651 |
| 43 | -8.0274392 | 6.3649985 |
| 44 | -7.8568143 | 6.2413183 |

HIGH RESOLUTION 102

| INDEX | LONGITUDE | LATITUDE |
|---|---|---|
| 1 | -8.8614463 | 5.4627681 |
| 2 | -8.8971374 | 5.3298048 |
| 3 | -8.9301443 | 5.2069904 |
| 4 | -8.9608392 | 5.0929202 |
| 5 | -8.9895191 | 4.9864324 |
| 6 | -9.0164505 | 4.8865554 |
| 7 | -9.0418419 | 4.7924713 |
| 8 | -9.0658772 | 4.7034842 |
| 9 | -9.0887208 | 4.6189964 |
| 10 | -9.1105022 | 4.5384924 |
| 11 | -9.1313446 | 4.4615247 |
| 12 | -9.1513503 | 4.3876989 |
| 13 | -9.1668923 | 4.3934901 |
| 14 | -9.1824890 | 4.3993034 |
| 15 | -9.1981404 | 4.4051390 |
| 16 | -9.2138499 | 4.4110001 |
| 17 | -9.2296208 | 4.4168852 |
| 18 | -9.2454531 | 4.4227976 |
| 19 | -9.2613539 | 4.4287373 |
| 20 | -9.2773228 | 4.4347051 |
| 21 | -9.2933601 | 4.4407020 |
| 22 | -9.3094759 | 4.4467297 |
| 23 | -9.3256669 | 4.4527881 |
| 24 | -9.3097150 | 4.5300281 |
| 25 | -9.2930834 | 4.6106585 |
| 26 | -9.2756972 | 4.6951078 |
| 27 | -9.2574538 | 4.7838627 |
| 28 | -9.2382439 | 4.8774892 |
| 29 | -9.2179412 | 4.9766405 |
| 30 | -9.1963919 | 5.0820824 |
| 31 | -9.1734254 | 5.1947173 |
| 32 | -9.1488299 | 5.3156236 |
| 33 | -9.1223527 | 5.4460956 |
| 34 | -9.0936931 | 5.5877051 |
| 35 | -9.0719459 | 5.5759426 |
| 36 | -9.0503420 | 5.5642690 |
| 37 | -9.0288678 | 5.5526807 |
| 38 | -9.0075303 | 5.5411761 |
| 39 | -8.9863158 | 5.5297526 |
| 40 | -8.9652241 | 5.5184069 |
| 41 | -8.9442487 | 5.5071379 |
| 42 | -8.9233892 | 5.4959406 |
| 43 | -8.9026357 | 5.4848160 |
| 44 | -8.8819915 | 5.4737588 |

**********
* PHOTO FRAME NUMBER 1 OF 4 *
**********

# FRAME 103

| | YEAR | MONTH | DAY | HOUR | MINUTE | SECOND |
|---|---|---|---|---|---|---|
| GMT | 67 | 2 | 18 | 17 | 58 | 0.699 |

| | | | | | |
|---|---|---|---|---|---|
| LONGITUDE OF NADIR POINT | = | -6.0352707 | DEG | LATITUDE OF NADIR POINT | = 1.4337480 DEG |
| LONG OF CAMERA AXIS INTERSECT | = | -6.2605752 | DEG | LATI OF CAMERA AXIS INTERSECT | = 0.9683740 DEG |
| SPACECRAFT RADIUS | = | 1783.9870300 | KM | SPACECRAFT ALTITUDE | = 45.8970337 KM |
| MEAN ALTITUDE RATE | = | -0.0476939 | KM/SEC | TIME FROM PERIAPSIS | = -91.6952477 SEC |
| HORIZONTAL VELOCITY | = | 1.9161136 | KM/SEC | TRUE ANOMALY | = 354.3478813 DEG |
| SCALE FACTOR (HIGH) | = | 0.0125592 | M/KM | TILT DISTANCE (HIGH) | = 208.1282234 MM |
| SCALE FACTOR (LOW) | = | 0.0016471 | M/KM | TILT DISTANCE (LOW) | = 27.2955046 MM |
| IMAGE MOTION COMPENSATION (V/H) | = | 0.0394622 | RAD/SEC | SWING ANGLE | = 4.6501389 DEG |
| EMISSION ANGLE | = | 19.3563478 | DEG | INCIDENCE ANGLE | = 76.5849819 DEG |
| PHASE ANGLE | = | 69.4844809 | DEG | NORTH DEVIATION ANGLE | = 337.4929008 DEG |
| TILT ANGLE | = | 18.8393233 | DEG | RESOLUTION CONSTANT | = 1.0539642 MIR |
| TILT AZIMUTH | = | 205.8312645 | DEG | SUN AZIMUTH AT PRINCIPAL GND PT | = 91.7408075 DEG |
| SUN ANGLE AT NADIR | = | 76.3744497 | DEG | SUN ARC AT NADIR | = 2316.8489990 KM |
| LONGITUDE DISTANCE TO TARGET | = | -0.5352707 | DEG | LATITUDE DISTANCE TO TARGET | = 0.7667480 DEG |
| LONGITUDE ARC LENGTH TO TARGET | = | -16.2376468 | KM | LATITUDE ARC LENGTH TO TARGET | = 23.2596030 KM |
| FORWARD OVERLAP RATIO | = | 0. | PCT | SIDE OVERLAP RATIO | = 0. PCT |
| TIME BETWEEN PHOTOS | = | 0. | SEC | ALPHA | = 6.3700740 DEG. |

| | X | Y | Z | MAGNITUDE (KM) |
|---|---|---|---|---|
| DIRECTION COSINES TO TARGET | -0.80465051 | 0.38657410 | -0.45066399 | 54.15104055 |
| CAMERA AXIS | -0.94844893 | -0.04120933 | -0.31423943 | 48.56977844 |
| C1 | -0.92267670 | 0.37840918 | -0.07398777 | 47.91972351 |
| C2 | -0.70277360 | 0.11121213 | -0.70266716 | 63.80798340 |
| C3 | -0.75184338 | -0.45116561 | -0.48081299 | 65.30706787 |
| C4 | -0.97174643 | -0.18396862 | 0.14786624 | 48.75045776 |

| | X | Y | Z | X DOT | Y DOT | Z DOT |
|---|---|---|---|---|---|---|
| STATE VECTOR (1950.0) | -531.5506363 | -1588.6834717 | -613.3094559 | 1.7278573 | -0.2152517 | -0.8012130 |

LONG -5.5939 DEG
LATI 1.3547 DEG

(1) * 42.74459 KM * (2)

LONG -5.9581 DEG
LATI -0.0065 DEG

LOW RESOLUTION

29.32805 KM 39.18304 KM

(4) * 43.74606 KM * (3)

LONG -6.4937 DEG
LATI 1.7093 DEG

LONG -7.1715 DEG
LATI 0.4363 DEG

LONG -6.0925 DEG
LATI 1.2105 DEG

(1) * 18.54327 KM * (2)

LONG -6.3074 DEG
LATI 0.6382 DEG

HIGH RESOLUTION

4.12977 KM 4.68512 KM

(4) * 18.59687 KM * (3)

LONG -6.2194 DEG
LATI 1.2597 DEG

LONG -6.4520 DEG
LATI 0.6925 DEG

LOW RESOLUTION 103

| INDEX | LONGITUDE | LATITUDE |
|---|---|---|
| 1 | -5.5939351 | 1.3547048 |
| 2 | -5.6217442 | 1.2521956 |
| 3 | -5.6495363 | 1.1495140 |
| 4 | -5.6775981 | 1.0455952 |
| 5 | -5.7062268 | 0.9393235 |
| 6 | -5.7357469 | 0.8294744 |
| 7 | -5.7665237 | 0.7146657 |
| 8 | -5.7989774 | 0.5932685 |
| 9 | -5.8336269 | 0.4633088 |
| 10 | -5.8711007 | 0.3223175 |
| 11 | -5.9122219 | 0.1671100 |
| 12 | -5.9580593 | -0.0065468 |
| 13 | -6.0721200 | 0.0362922 |
| 14 | -6.1827520 | 0.0776029 |
| 15 | -6.2909354 | 0.1177704 |
| 16 | -6.3975580 | 0.1571387 |
| 17 | -6.5034636 | 0.1960247 |
| 18 | -6.6094715 | 0.2347331 |
| 19 | -6.7164015 | 0.2735602 |
| 20 | -6.8251040 | 0.3128073 |
| 21 | -6.9364907 | 0.3527887 |
| 22 | -7.0515657 | 0.3938441 |
| 23 | -7.1714526 | 0.4363483 |
| 24 | -7.0839443 | 0.5991997 |
| 25 | -7.0060015 | 0.7446221 |
| 26 | -6.9354150 | 0.8766249 |
| 27 | -6.8705316 | 0.9982219 |
| 28 | -6.8100775 | 1.1117422 |
| 29 | -6.7530352 | 1.2190470 |
| 30 | -6.6985747 | 1.3216680 |
| 31 | -6.6459993 | 1.4209073 |
| 32 | -6.5946910 | 1.5179079 |
| 33 | -6.5440929 | 1.6137193 |
| 34 | -6.4936759 | 1.7093359 |
| 35 | -6.4057270 | 1.6746488 |
| 36 | -6.3210633 | 1.6412586 |
| 37 | -6.2388893 | 1.6088570 |
| 38 | -6.1585082 | 1.5771666 |
| 39 | -6.0792747 | 1.5459322 |
| 40 | -6.0005772 | 1.5149129 |
| 41 | -5.9218217 | 1.4838756 |
| 42 | -5.8424174 | 1.4525874 |
| 43 | -5.7617494 | 1.4208057 |
| 44 | -5.6791587 | 1.3882709 |

HIGH RESOLUTION 103

| INDEX | LONGITUDE | LATITUDE |
|---|---|---|
| 1 | -6.0924603 | 1.2104606 |
| 2 | -6.1101437 | 1.1633972 |
| 3 | -6.1280490 | 1.1157472 |
| 4 | -6.1462173 | 1.0673929 |
| 5 | -6.1646930 | 1.0182113 |
| 6 | -6.1835306 | 0.9680692 |
| 7 | -6.2027781 | 0.9168265 |
| 8 | -6.2224969 | 0.8643288 |
| 9 | -6.2427484 | 0.8104113 |
| 10 | -6.2635975 | 0.7548904 |
| 11 | -6.2851229 | 0.6975638 |
| 12 | -6.3074598 | 0.6382112 |
| 13 | -6.3205340 | 0.6431451 |
| 14 | -6.3336548 | 0.6480765 |
| 15 | -6.3467790 | 0.6530053 |
| 16 | -6.3599066 | 0.6579333 |
| 17 | -6.3730376 | 0.6628613 |
| 18 | -6.3861755 | 0.6677893 |
| 19 | -6.3993202 | 0.6727190 |
| 20 | -6.4124752 | 0.6776495 |
| 21 | -6.4256438 | 0.6825826 |
| 22 | -6.4388260 | 0.6875191 |
| 23 | -6.4520220 | 0.6924591 |
| 24 | -6.4278738 | 0.7512994 |
| 25 | -6.4045556 | 0.8081275 |
| 26 | -6.3819750 | 0.8631651 |
| 27 | -6.3600535 | 0.9166114 |
| 28 | -6.3387126 | 0.9686472 |
| 29 | -6.3178839 | 1.0194390 |
| 30 | -6.2975094 | 1.0691380 |
| 31 | -6.2775243 | 1.1178842 |
| 32 | -6.2578841 | 1.1658083 |
| 33 | -6.2385308 | 1.2130330 |
| 34 | -6.2194199 | 1.2596747 |
| 35 | -6.2078393 | 1.2551890 |
| 36 | -6.1962690 | 1.2507067 |
| 37 | -6.1847123 | 1.2462278 |
| 38 | -6.1731659 | 1.2417523 |
| 39 | -6.1616262 | 1.2372802 |
| 40 | -6.1500934 | 1.2328090 |
| 41 | -6.1385641 | 1.2283395 |
| 42 | -6.1270382 | 1.2238691 |
| 43 | -6.1155122 | 1.2194005 |
| 44 | -6.1039863 | 1.2149310 |

**********
* PHOTO FRAME NUMBER 2 OF 4 *
**********

## FRAME 104

| | YEAR | MONTH | DAY | HOUR | MINUTE | SECOND |
|---|---|---|---|---|---|---|
| GMT | 67 | 2 | 18 | 17 | 58 | 9.199 |

| | | | | | |
|---|---|---|---|---|---|
| LONGITUDE OF NADIR POINT | = | -5.5482635 | DEG | | |
| LONG OF CAMERA AXIS INTERSECT | = | -5.7588978 | DEG | | |
| SPACECRAFT RADIUS | = | 1783.6302960 | KM | | |
| MEAN ALTITUDE RATE | = | -0.0432983 | KM/SEC | | |
| HORIZONTAL VELOCITY | = | 1.9165289 | KM/SEC | | |
| SCALE FACTOR (HIGH) | = | 0.0126690 | M/KM | | |
| SCALE FACTOR (LOW) | = | 0.0016615 | M/KM | | |
| IMAGE MOTION COMPENSATION (V/H) | = | 0.0398128 | RAD/SEC | | |
| EMISSION ANGLE | = | 19.3145692 | DEG | | |
| PHASE ANGLE | = | 69.4844837 | DEG | | |
| TILT ANGLE | = | 18.8029721 | DEG | | |
| TILT AZIMUTH | = | 204.3115845 | DEG | | |
| SUN ANGLE AT NADIR | = | 75.8805799 | DEG | | |
| LONGITUDE DISTANCE TO TARGET | = | -0.0482635 | DEG | | |
| LONGITUDE ARC LENGTH TO TARGET | = | -1.4640938 | KM | | |
| FORWARD OVERLAP RATIO | = | 51.3530884 | PCT | | |
| TIME BETWEEN PHOTOS | = | 8.4998131 | SEC | | |
| LATITUDE OF NADIR POINT | = | 1.2455238 | DEG | | |
| LATI OF CAMERA AXIS INTERSECT | = | 0.7792879 | DEG | | |
| SPACECRAFT ALTITUDE | = | 45.5102597 | KM | | |
| TIME FROM PERIAPSIS | = | -83.2384436 | SEC | | |
| TRUE ANOMALY | = | 354.8702660 | DEG | | |
| TILT DISTANCE (HIGH) | = | 207.6962490 | MM | | |
| TILT DISTANCE (LOW) | = | 27.2388523 | MM | | |
| SWING ANGLE | = | 3.0325756 | DEG | | |
| INCIDENCE ANGLE | = | 76.0767117 | DEG | | |
| NORTH DEVIATION ANGLE | = | 337.4558182 | DEG | | |
| RESOLUTION CONSTANT | = | 1.0448373 | MTR | | |
| SUN AZIMUTH AT PRINCIPAL GND PT | = | 91.7061872 | DEG | | |
| SUN ARC AT NADIR | = | 2301.8672485 | KM | | |
| LATITUDE DISTANCE TO TARGET | = | 0.5785208 | DEG | | |
| LATITUDE ARC LENGTH TO TARGET | = | 17.5496566 | KM | | |
| SIDE OVERLAP RATIO | = | 0. | PCT | | |
| ALPHA | = | 5.8214172 | DEG. | | |

| | X | Y | Z | MAGNITUDE (KM) |
|---|---|---|---|---|
| DIRECTION COSINES TO TARGET | -0.91759901 | 0.11922020 | -0.37920784 | 48.88190556 |
| CAMERA AXIS | -0.94844988 | -0.04118953 | -0.31423915 | 48.14918518 |
| C1 | -0.92266885 | 0.37842841 | -0.07398743 | 47.64752197 |
| C2 | -0.70277150 | 0.11122688 | -0.70266692 | 63.50151062 |
| C3 | -0.75185291 | -0.45114987 | -0.48081283 | 64.46858215 |
| C4 | -0.97175022 | -0.18394841 | 0.14786650 | 48.18368530 |

| | X | Y | Z | X DOT | Y DOT | Z DOT |
|---|---|---|---|---|---|---|
| STATE VECTOR (1950.0) | -516.8474045 | -1590.4635010 | -620.1005325 | 1.7317087 | -0.2035762 | -0.7966802 |

LONG -5.0967 DEG
LATI 1.1619 DEG

(1) *

42.53877 KM

LONG -5.4587 DEG
LATI -0.1929 DEG

(2) *

LOW RESOLUTION

29.06742 KM

38.82070 KM

(4) *

43.18479 KM

(3) *

LONG -5.9885 DEG
LATI 1.5131 DEG

LONG -6.6571 DEG
LATI 0.2562 DEG

LONG -5.5922 DEG
LATI 1.0191 DEG

(1) *

18.39087 KM

LONG -5.8055 DEG
LATI 0.4516 DEG

(2) *

HIGH RESOLUTION

4.09322 KM

4.64310 KM

(4) *

18.42546 KM

(3) *

LONG -5.7180 DEG
LATI 1.0681 DEG

LONG -5.9485 DEG
LATI 0.5062 DEG

LOW RESOLUTION 104

| INDEX | LONGITUDE | LATITUDE |
|---|---|---|
| 1 | -5.0966666 | 1.1619014 |
| 2 | -5.1243050 | 1.0599668 |
| 3 | -5.1519296 | 0.9578469 |
| 4 | -5.1798241 | 0.8544806 |
| 5 | -5.2082855 | 0.7487595 |
| 6 | -5.2376348 | 0.6394653 |
| 7 | -5.2682375 | 0.5252159 |
| 8 | -5.3005102 | 0.4043941 |
| 9 | -5.3349684 | 0.2750287 |
| 10 | -5.3722442 | 0.1346546 |
| 11 | -5.4131468 | -0.0199057 |
| 12 | -5.4587486 | -0.1928700 |
| 13 | -5.5722390 | -0.1491500 |
| 14 | -5.6821538 | -0.1070461 |
| 15 | -5.7894731 | -0.0661615 |
| 16 | -5.8950918 | -0.0261425 |
| 17 | -5.9998464 | 0.0133372 |
| 18 | -6.1045532 | 0.0525865 |
| 19 | -6.2100181 | 0.0919062 |
| 20 | -6.3170745 | 0.1315998 |
| 21 | -6.4266102 | 0.1719833 |
| 22 | -6.5395918 | 0.2133982 |
| 23 | -6.6571121 | 0.2562141 |
| 24 | -6.5709082 | 0.4168157 |
| 25 | -6.4940925 | 0.5602813 |
| 26 | -6.4244998 | 0.6905475 |
| 27 | -6.3605077 | 0.8105770 |
| 28 | -6.3008665 | 0.9226612 |
| 29 | -6.2445754 | 1.0286307 |
| 30 | -6.1908219 | 1.1299950 |
| 31 | -6.1389124 | 1.2280364 |
| 32 | -6.0882427 | 1.3238827 |
| 33 | -6.0382628 | 1.4185679 |
| 34 | -5.9884536 | 1.5130738 |
| 35 | -5.9017649 | 1.4789110 |
| 36 | -5.8182111 | 1.4459886 |
| 37 | -5.7370275 | 1.4140054 |
| 38 | -5.6575241 | 1.3826881 |
| 39 | -5.5790691 | 1.3517883 |
| 40 | -5.5010616 | 1.3210696 |
| 41 | -5.4229140 | 1.2903021 |
| 42 | -5.3440390 | 1.2592512 |
| 43 | -5.2638218 | 1.2276770 |
| 44 | -5.1816034 | 1.1953215 |

HIGH RESOLUTION 104

| INDEX | LONGITUDE | LATITUDE |
|---|---|---|
| 1 | -5.5922344 | 1.0191487 |
| 2 | -5.6097811 | 0.9724755 |
| 3 | -5.6275464 | 0.9252200 |
| 4 | -5.6455713 | 0.8772661 |
| 5 | -5.6639001 | 0.8284908 |
| 6 | -5.6825875 | 0.7787628 |
| 7 | -5.7016847 | 0.7279436 |
| 8 | -5.7212464 | 0.6758796 |
| 9 | -5.7413340 | 0.6224070 |
| 10 | -5.7620192 | 0.5673445 |
| 11 | -5.7833738 | 0.5104926 |
| 12 | -5.8054797 | 0.4516309 |
| 13 | -5.8184707 | 0.4565947 |
| 14 | -5.8314583 | 0.4615560 |
| 15 | -5.8444425 | 0.4665147 |
| 16 | -5.8574301 | 0.4714709 |
| 17 | -5.8704177 | 0.4764270 |
| 18 | -5.8834087 | 0.4813815 |
| 19 | -5.8964066 | 0.4863359 |
| 20 | -5.9094146 | 0.4912929 |
| 21 | -5.9224296 | 0.4962499 |
| 22 | -5.9354548 | 0.5012095 |
| 23 | -5.9484970 | 0.5061725 |
| 24 | -5.9245709 | 0.5644613 |
| 25 | -5.9014643 | 0.6207575 |
| 26 | -5.8790886 | 0.6752820 |
| 27 | -5.8573652 | 0.7282313 |
| 28 | -5.8362156 | 0.7797865 |
| 29 | -5.8155747 | 0.8301070 |
| 30 | -5.7953812 | 0.8793476 |
| 31 | -5.7755771 | 0.9276447 |
| 32 | -5.7561077 | 0.9751273 |
| 33 | -5.7369251 | 1.0219192 |
| 34 | -5.7179816 | 1.0681340 |
| 35 | -5.7065205 | 1.0636713 |
| 36 | -5.6950697 | 1.0592138 |
| 37 | -5.6836291 | 1.0547571 |
| 38 | -5.6721954 | 1.0503046 |
| 39 | -5.6607684 | 1.0458539 |
| 40 | -5.6493450 | 1.0414032 |
| 41 | -5.6379215 | 1.0369533 |
| 42 | -5.6265048 | 1.0325035 |
| 43 | -5.6150813 | 1.0280536 |
| 44 | -5.6036612 | 1.0236029 |

**********
* PHOTO FRAME NUMBER 3 OF 4 *
**********

## FRAME 105

| | YEAR | MONTH | DAY | HOUR | MINUTE | SECOND |
|---|---|---|---|---|---|---|
| GMT | 67 | 2 | 18 | 17 | 58 | 17.698 |

| | | | | | |
|---|---|---|---|---|---|
| LONGITUDE OF NADIR POINT | = | -5.0611305 | DEG | LATITUDE OF NADIR POINT | = 1.0371263 DEG |
| LONG OF CAMERA AXIS INTERSECT | = | -5.2574800 | DEG | LATI OF CAMERA AXIS INTERSECT | = 0.5896758 DEG |
| SPACECRAFT RADIUS | = | 1783.2509613 | KM | SPACECRAFT ALTITUDE | = 45.1609650 KM |
| MEAN ALTITUDE RATE | = | -0.0388974 | KM/SEC | TIME FROM PERIAPSIS | = -74.7217083 SEC |
| HORIZONTAL VELOCITY | = | 1.9169039 | KM/SEC | TRUE ANOMALY | = 355.3928604 DEG |
| SCALE FACTOR (HIGH) | = | 0.0127688 | M/KM | TILT DISTANCE (HIGH) | = 207.4305210 MM |
| SCALE FACTOR (LOW) | = | 0.0016746 | M/KM | TILT DISTANCE (LOW) | = 27.2040029 MM |
| IMAGE MOTION COMPENSATION (V/H) | = | 0.0401301 | RAD/SEC | SWING ANGLE | = 1.4094623 DEG |
| EMISSION ANGLE | = | 19.2876132 | DEG | INCIDENCE ANGLE | = 75.5687685 DEG |
| PHASE ANGLE | = | 69.4844866 | DEG | NORTH DEVIATION ANGLE | = 337.4220238 DEG |
| TILT ANGLE | = | 18.7806029 | DEG | RESOLUTION CONSTANT | = 1.0366631 MTR |
| TILT AZIMUTH | = | 202.7847824 | DEG | SUN AZIMUTH AT PRINCIPAL GND PT | = 91.6680498 DEG |
| SUN ANGLE AT NADIR | = | 75.3866367 | DEG | SUN ARC AT NADIR | = 2286.8832703 KM |
| LONGITUDE DISTANCE TO TARGET | = | 0.4388695 | DEG | LATITUDE DISTANCE TO TARGET | = 0.3901263 DEG |
| LONGITUDE ARC LENGTH TO TARGET | = | 13.3132781 | KM | LATITUDE ARC LENGTH TO TARGET | = 11.8346342 KM |
| FORWARD OVERLAP RATIO | = | 50.9142351 | PCT | SIDE OVERLAP RATIO | = 0. PCT |
| TIME BETWEEN PHOTOS | = | 8.4998131 | SEC | ALPHA | = 5.2720796 DEG. |

| DIRECTION COSINES TO TARGET | X | Y | Z | MAGNITUDE (KM) |
|---|---|---|---|---|
| CAMERA AXIS | -0.94640448 | -0.19099725 | -0.26045846 | 48.63146830 |
| C1 | -0.94845083 | -0.04116958 | -0.31423888 | 47.77249146 |
| C2 | -0.92266093 | 0.37844776 | -0.07398710 | 47.41720581 |
| C3 | -0.70276937 | 0.11124173 | -0.70266670 | 63.25137329 |
| C4 | -0.75186252 | -0.45113403 | -0.48081269 | 63.69664001 |
| | -0.97175404 | -0.18392806 | 0.14786676 | 47.66416931 |

| | X | Y | Z | X DOT | Y DOT | Z DOT |
|---|---|---|---|---|---|---|
| STATE VECTOR (1950.0) | -532.1118851 | -1592.1441956 | -626.8528671 | 1.7354543 | -0.1918806 | -0.7920949 |

LONG -4.5990 DEG
LATI 0.9689 DEG

LONG -4.9593 DEG
LATI -0.3806 DEG

(1) • 42.37073 KM • (2)

LOW RESOLUTION

28.83649 KM 38.50213 KM

(4) • 42.66816 KM • (3)

LONG -5.4838 DEG
LATI 1.3170 DEG

LONG -6.1440 DEG
LATI 0.0749 DEG

LONG -5.0921 DEG
LATI 0.8275 DEG

LONG -5.3038 DEG
LATI 0.2642 DEG

(1) • 18.25520 KM • (2)

HIGH RESOLUTION

4.06078 KM 4.60589 KM

(4) • 18.27113 KM • (3)

LONG -5.2168 DEG
LATI 0.8763 DEG

LONG -5.4454 DEG
LATI 0.3191 DEG

LOW RESOLUTION 105

| INDEX | LONGITUDE | LATITUDE |
|---|---|---|
| 1 | -4.5990361 | 0.9689289 |
| 2 | -4.6265242 | 0.8674784 |
| 3 | -4.6540020 | 0.7658290 |
| 4 | -4.6817496 | 0.6629245 |
| 5 | -4.7100642 | 0.5576593 |
| 6 | -4.7392667 | 0.4488211 |
| 7 | -4.7697157 | 0.3350327 |
| 8 | -4.8018346 | 0.2146763 |
| 9 | -4.8361290 | 0.0857872 |
| 10 | -4.8732272 | -0.0540968 |
| 11 | -4.9139454 | -0.2081440 |
| 12 | -4.9593456 | -0.3805781 |
| 13 | -5.0723819 | -0.3359377 |
| 14 | -5.1816853 | -0.2930083 |
| 15 | -5.2882500 | -0.2513783 |
| 16 | -5.3929738 | -0.2106840 |
| 17 | -5.4966937 | -0.1705882 |
| 18 | -5.6002120 | -0.1307793 |
| 19 | -5.7043314 | -0.0909482 |
| 20 | -5.8098681 | -0.0507910 |
| 21 | -5.9176860 | -0.0099852 |
| 22 | -6.0287244 | 0.0318048 |
| 23 | -6.1440351 | 0.0749494 |
| 24 | -6.0590402 | 0.2334746 |
| 25 | -5.9832695 | 0.3751362 |
| 26 | -5.9145954 | 0.5038058 |
| 27 | -5.8514298 | 0.6223916 |
| 28 | -5.7925365 | 0.7331559 |
| 29 | -5.7369387 | 0.8378986 |
| 30 | -5.6838340 | 0.9381085 |
| 31 | -5.6325393 | 1.0350503 |
| 32 | -5.5824603 | 1.1298371 |
| 33 | -5.5330542 | 1.2234909 |
| 34 | -5.4838051 | 1.3169817 |
| 35 | -5.3982707 | 1.2833063 |
| 36 | -5.3157346 | 1.2508168 |
| 37 | -5.2354492 | 1.2192169 |
| 38 | -5.1567381 | 1.1882437 |
| 39 | -5.0789798 | 1.1576496 |
| 40 | -5.0015835 | 1.1272023 |
| 41 | -4.9239687 | 1.0966748 |
| 42 | -4.8455444 | 1.0658331 |
| 43 | -4.7656961 | 1.0344398 |
| 44 | -4.6837714 | 1.0022329 |

HIGH RESOLUTION 105

| INDEX | LONGITUDE | LATITUDE |
|---|---|---|
| 1 | -5.0921177 | 0.8275363 |
| 2 | -5.1095415 | 0.7812089 |
| 3 | -5.1271805 | 0.7343051 |
| 4 | -5.1450756 | 0.6867055 |
| 5 | -5.1632780 | 0.6382923 |
| 6 | -5.1818322 | 0.5889339 |
| 7 | -5.2007928 | 0.5384904 |
| 8 | -5.2202144 | 0.4868123 |
| 9 | -5.2401586 | 0.4337366 |
| 10 | -5.2606936 | 0.3790815 |
| 11 | -5.2818910 | 0.3226522 |
| 12 | -5.3038399 | 0.2642250 |
| 13 | -5.3167080 | 0.2692239 |
| 14 | -5.3295726 | 0.2742184 |
| 15 | -5.3424339 | 0.2792096 |
| 16 | -5.3552951 | 0.2841990 |
| 17 | -5.3681529 | 0.2891851 |
| 18 | -5.3810142 | 0.2941694 |
| 19 | -5.3938788 | 0.2991546 |
| 20 | -5.4067503 | 0.3041381 |
| 21 | -5.4196252 | 0.3091233 |
| 22 | -5.4325138 | 0.3141101 |
| 23 | -5.4454092 | 0.3190987 |
| 24 | -5.4216845 | 0.3768907 |
| 25 | -5.3987727 | 0.4327096 |
| 26 | -5.3765848 | 0.4867722 |
| 27 | -5.3550389 | 0.5392750 |
| 28 | -5.3340635 | 0.5903947 |
| 29 | -5.3135900 | 0.6402935 |
| 30 | -5.2935604 | 0.6891208 |
| 31 | -5.2739168 | 0.7370133 |
| 32 | -5.2546045 | 0.7841006 |
| 33 | -5.2355790 | 0.8305023 |
| 34 | -5.2167857 | 0.8763320 |
| 35 | -5.2054305 | 0.8718907 |
| 36 | -5.1940855 | 0.8674519 |
| 37 | -5.1827509 | 0.8630157 |
| 38 | -5.1714162 | 0.8585812 |
| 39 | -5.1600883 | 0.8541484 |
| 40 | -5.1487638 | 0.8497148 |
| 41 | -5.1374394 | 0.8452811 |
| 42 | -5.1261149 | 0.8408475 |
| 43 | -5.1147870 | 0.8364121 |
| 44 | -5.1034558 | 0.8319751 |

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* PHOTO FRAME NUMBER 4 OF 4 *
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## FRAME 106

| | YEAR | MONTH | DAY | HOUR | MINUTE | SECOND |
|---|---|---|---|---|---|---|
| GMT | 67 | 2 | 18 | 17 | 58 | 26.198 |

| | | | | | |
|---|---|---|---|---|---|
| LONGITUDE OF NADIR POINT | = | -4.5738716 | DEG | LATITUDE OF NADIR POINT | = | 0.8685858 | DEG |
| LONG OF CAMERA AXIS INTERSECT | = | -4.7962909 | DEG | LATI OF CAMERA AXIS INTERSECT | = | 0.3995507 | DEG |
| SPACECRAFT RADIUS | = | 1782.9390564 | KM | SPACECRAFT ALTITUDE | = | 44.8490601 | KM |
| MEAN ALTITUDE RATE | = | -0.0344914 | KM/SEC | TIME FROM PERIAPSIS | = | -66.2349157 | SEC |
| HORIZONTAL VELOCITY | = | 1.9172389 | KM/SEC | TRUE ANOMALY | = | 355.9156532 | DEG |
| SCALE FACTOR (HIGH) | = | 0.0128584 | M/KM | TILT DISTANCE (HIGH) | = | 207.3315182 | MM |
| SCALE FACTOR (LOW) | = | 0.0016863 | M/KM | TILT DISTANCE (LOW) | = | 27.1910188 | MM |
| IMAGE MOTION COMPENSATION (V/H) | = | 0.0404126 | RAD/SEC | SWING ANGLE | = | 359.7831764 | DEG |
| EMISSION ANGLE | = | 19.2755320 | DEG | INCIDENCE ANGLE | = | 75.0611448 | DEG |
| PHASE ANGLE | = | 69.4844885 | DEG | NORTH DEVIATION ANGLE | = | 337.3915520 | DEG |
| TILT ANGLE | = | 18.7722671 | DEG | RESOLUTION CONSTANT | = | 1.0294404 | MTR |
| TILT AZIMUTH | = | 201.2532406 | DEG | SUN AZIMUTH AT PRINCIPAL GND PT | = | 91.6263647 | DEG |
| SUN ANGLE AT NADIR | = | 74.8926458 | DEG | SUN ARC AT NADIR | = | 2271.8978577 | KM |
| LONGITUDE DISTANCE TO TARGET | = | 0.9261284 | DEG | LATITUDE DISTANCE TO TARGET | = | 0.2015857 | DEG |
| LONGITUDE ARC LENGTH TO TARGET | = | 28.0944686 | KM | LATITUDE ARC LENGTH TO TARGET | = | 6.1151829 | KM |
| FORWARD OVERLAP RATIO | = | 50.5170879 | PCT | SIDE OVERLAP RATIO | = | 0. | PCT |
| TIME BETWEEN PHOTOS | = | 8.5004568 | SEC | ALPHA | = | 4.7220511 | DEG. |

| | X | Y | Z | MAGNITUDE (KM) |
|---|---|---|---|---|
| DIRECTION COSINES TO TARGET | -0.88056076 | -0.45658195 | -0.12706558 | 53.47256851 |
| CAMERA AXIS | -0.94845179 | -0.04114973 | -0.31423859 | 47.43965149 |
| C1 | -0.92265305 | 0.37846704 | -0.07398674 | 47.22911072 |
| C2 | -0.70276727 | 0.11125652 | -0.70266646 | 63.05816650 |
| C3 | -0.75187208 | -0.45111824 | -0.48081254 | 62.99020386 |
| C4 | -0.97175782 | -0.18390779 | 0.14786703 | 47.19140625 |

| | X | Y | Z | X DOT | Y DOT | Z DOT |
|---|---|---|---|---|---|---|
| STATE VECTOR (1950.0) | -487.3449821 | -1593.7254181 | -633.5660019 | 1.7390933 | -0.1801665 | -0.7874576 |

LONG -4.1010 DEG  LONG -4.4598 DEG
LATI 0.7758 DEG  LATI -0.5697 DEG

(1) • 42.24086 KM • (2)

LOW RESOLUTION

28.63513 KM  38.22701 KM

(4) • 42.19546 KM • (3)

LONG -4.9797 DEG  LONG -5.6322 DEG
LATI 1.1211 DEG  LATI -0.1074 DEG

LONG -4.5921 DEG  LONG -4.8024 DEG
LATI 0.6356 DEG  LATI 0.0760 DEG

(1) • 18.13623 KM • (2)

HIGH RESOLUTION

4.03243 KM  4.57346 KM

(4) • 18.13380 KM • (3)

LONG -4.7158 DEG  LONG -4.9427 DEG
LATI 0.6843 DEG  LATI 0.1313 DEG

LOW RESOLUTION 106

| INDEX | LONGITUDE | LATITUDE |
|---|---|---|
| 1 | -4.1010060 | 0.7757985 |
| 2 | -4.1283643 | 0.6747399 |
| 3 | -4.1557158 | 0.5734695 |
| 4 | -4.1833405 | 0.4709338 |
| 5 | -4.2115287 | 0.3660307 |
| 6 | -4.2406048 | 0.2575502 |
| 7 | -4.2709240 | 0.1441170 |
| 8 | -4.3029098 | 0.0241174 |
| 9 | -4.3370641 | -0.1044157 |
| 10 | -4.3740189 | -0.2439342 |
| 11 | -4.4145834 | -0.3976143 |
| 12 | -4.4598163 | -0.5696762 |
| 13 | -4.5725110 | -0.5240753 |
| 14 | -4.6813160 | -0.4802835 |
| 15 | -4.7872351 | -0.4378766 |
| 16 | -4.8911701 | -0.3964763 |
| 17 | -4.9939610 | -0.3557402 |
| 18 | -5.0964070 | -0.3153456 |
| 19 | -5.1993004 | -0.2749809 |
| 20 | -5.3034403 | -0.2343378 |
| 21 | -5.4096702 | -0.1930954 |
| 22 | -5.5189089 | -0.1509139 |
| 23 | -5.6321670 | -0.1074244 |
| 24 | -5.5482855 | 0.0492021 |
| 25 | -5.4734778 | 0.1892108 |
| 26 | -5.4056507 | 0.3164170 |
| 27 | -5.3432432 | 0.4336846 |
| 28 | -5.2850398 | 0.5432408 |
| 29 | -5.2300807 | 0.6468633 |
| 30 | -5.1775702 | 0.7460206 |
| 31 | -5.1268423 | 0.8419600 |
| 32 | -5.0773030 | 0.9357820 |
| 33 | -5.0284193 | 1.0284975 |
| 34 | -4.9796791 | 1.1210654 |
| 35 | -4.8952033 | 1.0878408 |
| 36 | -4.8135928 | 1.0557491 |
| 37 | -4.7341167 | 1.0245019 |
| 38 | -4.6561126 | 0.9938403 |
| 39 | -4.5789724 | 0.9635228 |
| 40 | -4.5021089 | 0.9333197 |
| 41 | -4.4249414 | 0.9030031 |
| 42 | -4.3468894 | 0.8723441 |
| 43 | -4.2673382 | 0.8411011 |
| 44 | -4.1856184 | 0.8090146 |

HIGH RESOLUTION 106

| INDEX | LONGITUDE | LATITUDE |
|---|---|---|
| 1 | -4.5920795 | 0.6356311 |
| 2 | -4.6093906 | 0.5896084 |
| 3 | -4.6269169 | 0.5430120 |
| 4 | -4.6447027 | 0.4957240 |
| 5 | -4.6627890 | 0.4476284 |
| 6 | -4.6812238 | 0.3985919 |
| 7 | -4.7000648 | 0.3484788 |
| 8 | -4.7193635 | 0.2971388 |
| 9 | -4.7391779 | 0.2444098 |
| 10 | -4.7595831 | 0.1901123 |
| 11 | -4.7806439 | 0.1340510 |
| 12 | -4.8024493 | 0.0760063 |
| 13 | -4.8152150 | 0.0810436 |
| 14 | -4.8279703 | 0.0860749 |
| 15 | -4.8407223 | 0.0911019 |
| 16 | -4.8534675 | 0.0961264 |
| 17 | -4.8662125 | 0.1011474 |
| 18 | -4.8789543 | 0.1061659 |
| 19 | -4.8916994 | 0.1111827 |
| 20 | -4.9044480 | 0.1162003 |
| 21 | -4.9171999 | 0.1212162 |
| 22 | -4.9299587 | 0.1262330 |
| 23 | -4.9427277 | 0.1312506 |
| 24 | -4.9191807 | 0.1886012 |
| 25 | -4.8964430 | 0.2439948 |
| 26 | -4.8744190 | 0.2976477 |
| 27 | -4.8530337 | 0.3497518 |
| 28 | -4.8322153 | 0.4004856 |
| 29 | -4.8118955 | 0.4500096 |
| 30 | -4.7920128 | 0.4984689 |
| 31 | -4.7725092 | 0.5460028 |
| 32 | -4.7533403 | 0.5927375 |
| 33 | -4.7344480 | 0.6387926 |
| 34 | -4.7157913 | 0.6842816 |
| 35 | -4.7045352 | 0.6798565 |
| 36 | -4.6932824 | 0.6754340 |
| 37 | -4.6820365 | 0.6710123 |
| 38 | -4.6707940 | 0.6665923 |
| 39 | -4.6595550 | 0.6621740 |
| 40 | -4.6483159 | 0.6577540 |
| 41 | -4.6370768 | 0.6533332 |
| 42 | -4.6258343 | 0.6489115 |
| 43 | -4.6145884 | 0.6444872 |
| 44 | -4.6033357 | 0.6400613 |

PHOTO FRAME NUMBER 1 OF 1

## FRAME 107

| | YEAR | MONTH | DAY | HOUR | MINUTE | SECOND |
|---|---|---|---|---|---|---|
| GMT | 67 | 2 | 19 | 0 | 56 | 16.000 |

| | | | | | |
|---|---|---|---|---|---|
| LONGITUDE OF NADIR POINT | = | -5.6149597 | DEG | LATITUDE OF NADIR POINT | = -0.2115233 DEG |
| LONG OF CAMERA AXIS INTERSECT | = | -5.6657408 | DEG | LATI OF CAMERA AXIS INTERSECT | = -0.3270662 DEG |
| SPACECRAFT RADIUS | = | 1781.9407196 | KM | SPACECRAFT ALTITUDE | = 43.8507233 KM |
| MEAN ALTITUDE RATE | = | -0.0107658 | KM/SEC | TIME FROM PERIAPSIS | = -20.6520195 SEC |
| HORIZONTAL VELOCITY | = | 1.9183160 | KM/SEC | TRUE ANOMALY | = 358.7260437 DEG |
| SCALE FACTOR (HIGH) | = | 0.0138568 | M/KM | TILT DISTANCE (HIGH) | = 53.2565217 MM |
| SCALE FACTOR (LOW) | = | 0.0018173 | M/KM | TILT DISTANCE (LOW) | = 6.9844619 MM |
| IMAGE MOTION COMPENSATION (V/H) | = | 0.0435756 | RAD/SEC | SWING ANGLE | = 2.1233434 DEG |
| EMISSION ANGLE | = | 5.1158072 | DEG | INCIDENCE ANGLE | = 72.4242353 DEG |
| PHASE ANGLE | = | 70.5481119 | DEG | NORTH DEVIATION ANGLE | = 338.3092613 DEG |
| TILT ANGLE | = | 4.9896006 | DEG | RESOLUTION CONSTANT | = 0.9552722 MTR |
| TILT AZIMUTH | = | 203.7294712 | DEG | SUN AZIMUTH AT PRINCIPAL GND PT | = 91.4331589 DEG |
| SUN ANGLE AT NADIR | = | 72.3763866 | DEG | SUN ARC AT NADIR | = 2195.5661621 KM |
| LONGITUDE DISTANCE TO TARGET | = | 0.0520403 | DEG | LATITUDE DISTANCE TO TARGET | = 0.1214767 DEG |
| LONGITUDE ARC LENGTH TO TARGET | = | 1.5786623 | KM | LATITUDE ARC LENGTH TO TARGET | = 3.6850443 KM |
| FORWARD OVERLAP RATIO | = | 0. | PCT | SIDE OVERLAP RATIO | = 0. PCT |
| TIME BETWEEN PHOTOS | = | 0. | SEC | ALPHA | = 1.8126471 DEG. |

| | X | Y | Z | MAGNITUDE (KM) |
|---|---|---|---|---|
| DIRECTION COSINES TO TARGET | -0.99487816 | 0.06178348 | -0.08000161 | 44.03819370 |
| CAMERA AXIS | -0.99514092 | 0.06266770 | -0.07594286 | 44.02175903 |
| C1 | -0.98301013 | 0.16859227 | 0.07257906 | 44.07440186 |
| C2 | -0.96633693 | 0.03683450 | -0.25462949 | 45.51469421 |
| C3 | -0.97400819 | -0.04535159 | -0.22192632 | 45.52857971 |
| C4 | -0.99068139 | 0.08640616 | 0.10528222 | 44.08740234 |

| | X | Y | Z | X DOT | Y DOT | Z DOT |
|---|---|---|---|---|---|---|
| STATE VECTOR (1950.0) | -402.7619743 | -1600.8119965 | -671.1903763 | 1.7579462 | -0.1117739 | -0.7597263 |

LONG -5.0066 DEG
LATI 0.0275 DEG

LONG -5.4105 DEG
LATI -1.0914 DEG

(1) • 36.08648 KM • (2)

LOW RESOLUTION

29.28489 KM 31.51215 KM

(4) • 36.17043 KM • (3)

LONG -5.9038 DEG
LATI 0.3841 DEG

LONG -6.3771 DEG
LATI -0.7104 DEG

LONG -5.5109 DEG
LATI -0.1114 DEG

LONG -5.7018 DEG
LATI -0.5989 DEG

(1) • 15.88187 KM • (2)

HIGH RESOLUTION

3.91377 KM 4.04169 KM

(4) • 15.88668 KM • (3)

LONG -5.6308 DEG
LATI -0.0639 DEG

LONG -5.8257 DEG
LATI -0.5499 DEG

LOW RESOLUTION 107

| INDEX | LONGITUDE | LATITUDE |
|---|---|---|
| 1 | -5.0066310 | 0.0275368 |
| 2 | -5.0440810 | -0.0751620 |
| 3 | -5.0802093 | -0.1744447 |
| 4 | -5.1154462 | -0.2714582 |
| 5 | -5.1501675 | -0.3672499 |
| 6 | -5.1847419 | -0.4628102 |
| 7 | -5.2195246 | -0.5591253 |
| 8 | -5.2548742 | -0.6572076 |
| 9 | -5.2911835 | -0.7581518 |
| 10 | -5.3288862 | -0.8631771 |
| 11 | -5.3684773 | -0.9736972 |
| 12 | -5.4105445 | -1.0914053 |
| 13 | -5.5032336 | -1.0544164 |
| 14 | -5.5928081 | -1.0187594 |
| 15 | -5.6800740 | -0.9841056 |
| 16 | -5.7657587 | -0.9501647 |
| 17 | -5.8505350 | -0.9166609 |
| 18 | -5.9350586 | -0.8833381 |
| 19 | -6.0199613 | -0.8499445 |
| 20 | -6.1058987 | -0.8162264 |
| 21 | -6.1935540 | -0.7819166 |
| 22 | -6.2836715 | -0.7467352 |
| 23 | -6.3770674 | -0.7103678 |
| 24 | -6.3269407 | -0.5955156 |
| 25 | -6.2799490 | -0.4876209 |
| 26 | -6.2353615 | -0.3850357 |
| 27 | -6.1925636 | -0.2863890 |
| 28 | -6.1510360 | -0.1904923 |
| 29 | -6.1103110 | -0.0962800 |
| 30 | -6.0699549 | -0.0027597 |
| 31 | -6.0295543 | 0.0910293 |
| 32 | -5.9886892 | 0.1860595 |
| 33 | -5.9469227 | 0.2833589 |
| 34 | -5.9037763 | 0.3840547 |
| 35 | -5.8173506 | 0.3494709 |
| 36 | -5.7338925 | 0.3161233 |
| 37 | -5.6526542 | 0.2837090 |
| 38 | -5.5729561 | 0.2519529 |
| 39 | -5.4941733 | 0.2206023 |
| 40 | -5.4157013 | 0.1894174 |
| 41 | -5.3369492 | 0.1581650 |
| 42 | -5.2573195 | 0.1266061 |
| 43 | -5.1761836 | 0.0944957 |
| 44 | -5.0928724 | 0.0615699 |

HIGH RESOLUTION 107

| INDEX | LONGITUDE | LATITUDE |
|---|---|---|
| 1 | -5.5109175 | -0.1114098 |
| 2 | -5.5280511 | -0.1551392 |
| 3 | -5.5451129 | -0.1986987 |
| 4 | -5.5621474 | -0.2421831 |
| 5 | -5.5791853 | -0.2856863 |
| 6 | -5.5962642 | -0.3293030 |
| 7 | -5.6134250 | -0.3731281 |
| 8 | -5.6307054 | -0.4172597 |
| 9 | -5.6481429 | -0.4617968 |
| 10 | -5.6657784 | -0.5068444 |
| 11 | -5.6836530 | -0.5525119 |
| 12 | -5.7018145 | -0.5989120 |
| 13 | -5.7130877 | -0.5944536 |
| 14 | -5.7243541 | -0.5899977 |
| 15 | -5.7356137 | -0.5855461 |
| 16 | -5.7468733 | -0.5810946 |
| 17 | -5.7581294 | -0.5766455 |
| 18 | -5.7693856 | -0.5721974 |
| 19 | -5.7806451 | -0.5677492 |
| 20 | -5.7919081 | -0.5633011 |
| 21 | -5.8031745 | -0.5588495 |
| 22 | -5.8144477 | -0.5543979 |
| 23 | -5.8257278 | -0.5499438 |
| 24 | -5.8071702 | -0.5036838 |
| 25 | -5.7889097 | -0.4581546 |
| 26 | -5.7708950 | -0.4132401 |
| 27 | -5.7530887 | -0.3688336 |
| 28 | -5.7354463 | -0.3248310 |
| 29 | -5.7179269 | -0.2811323 |
| 30 | -5.7004929 | -0.2376402 |
| 31 | -5.6831066 | -0.1942617 |
| 32 | -5.6657272 | -0.1508994 |
| 33 | -5.6483204 | -0.1074611 |
| 34 | -5.6308488 | -0.0638503 |
| 35 | -5.6199307 | -0.0681807 |
| 36 | -5.6090230 | -0.0725076 |
| 37 | -5.5981185 | -0.0768328 |
| 38 | -5.5872210 | -0.0811554 |
| 39 | -5.5763234 | -0.0854764 |
| 40 | -5.5654293 | -0.0897965 |
| 41 | -5.5545317 | -0.0941174 |
| 42 | -5.5436341 | -0.0984384 |
| 43 | -5.5327331 | -0.1027602 |
| 44 | -5.5218288 | -0.1070837 |

**********
* PHOTO FRAME NUMBER 1 OF 4 *
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## FRAME 108

| | YEAR | MONTH | DAY | HOUR | MINUTE | SECOND |
|---|---|---|---|---|---|---|
| GMT | 67 | 2 | 19 | 4 | 27 | 53.709 |

| | | | | | | |
|---|---|---|---|---|---|---|
| LONGITUDE OF NADIR POINT | = | 3.2016172 | DEG | LATITUDE OF NADIR POINT | = | -4.3341400 DEG |
| LONG OF CAMERA AXIS INTERSECT | = | 3.2229122 | DEG | LATI OF CAMERA AXIS INTERSECT | = | -4.3145954 DEG |
| SPACECRAFT RADIUS | = | 1788.9612579 | KM | SPACECRAFT ALTITUDE | = | 55.8712616 KM |
| MEAN ALTITUDE RATE | = | 0.0851567 | KM/SEC | TIME FROM PERIAPSIS | = | 164.6662636 SEC |
| HORIZONTAL VELOCITY | = | 1.9108010 | KM/SEC | TRUE ANOMALY | = | 10.1303208 DEG |
| SCALE FACTOR (HIGH) | = | 0.0119892 | M/KM | TILT DISTANCE (HIGH) | = | 10.4996413 MM |
| SCALE FACTOR (LOW) | = | 0.0015724 | M/KM | TILT DISTANCE (LOW) | = | 1.3770021 MM |
| IMAGE MOTION COMPENSATION (V/H) | = | 0.0375659 | RAD/SEC | SWING ANGLE | = | 206.1627789 DEG |
| EMISSION ANGLE | = | 1.0150517 | DEG | INCIDENCE ANGLE | = | 61.7237954 DEG |
| PHASE ANGLE | = | 62.4804292 | DEG | NORTH DEVIATION ANGLE | = | 338.7853394 DEG |
| TILT ANGLE | = | 0.9861078 | DEG | RESOLUTION CONSTANT | = | 1.1040749 MTR |
| TILT AZIMUTH | = | 47.3745556 | DEG | SUN AZIMUTH AT PRINCIPAL GND PT | = | 89.3408556 DEG |
| SUN ANGLE AT NADIR | = | 61.7452540 | DEG | SUN ARC AT NADIR | = | 1873.0665741 KM |
| LONGITUDE DISTANCE TO TARGET | = | -0.8813828 | DEG | LATITUDE DISTANCE TO TARGET | = | 0.4158600 DEG |
| LONGITUDE ARC LENGTH TO TARGET | = | -26.7370927 | KM | LATITUDE ARC LENGTH TO TARGET | = | 12.6152766 KM |
| FORWARD OVERLAP RATIO | = | 0. | PCT | SIDE OVERLAP RATIO | = | 0. PCT |
| TIME BETWEEN PHOTOS | = | 0. | SEC | ALPHA | = | -0.7587674 DEG. |

| | X | Y | Z | MAGNITUDE (KM) |
|---|---|---|---|---|
| DIRECTION COSINES TO TARGET | -0.90377320 | 0.40162899 | -0.14794651 | 59.01558113 |
| CAMERA AXIS | -0.99526440 | -0.04299171 | 0.08718077 | 50.87902832 |
| C1 | -0.87686060 | 0.37528599 | 0.30045453 | 58.41566467 |
| C2 | -0.92387217 | 0.11267536 | -0.36573827 | 57.65707397 |
| C3 | -0.88031384 | -0.45119333 | -0.14653376 | 57.34796143 |
| C4 | -0.83330226 | -0.18857873 | 0.51965892 | 58.09823608 |

| | X | Y | Z | X DOT | Y DOT | Z DOT |
|---|---|---|---|---|---|---|
| STATE VECTOR (1950.0) | -69.6888056 | -1597.3697357 | -802.4561157 | 1.7963267 | 0.1478374 | -0.6401307 |

LONG 4.0194 DEG
LATI -3.8811 DEG

LONG 3.5148 DEG
LATI -5.1588 DEG

(1) • 41.65452 KM • (2)

LOW RESOLUTION

35.33671 KM 34.87906 KM

(4) • 41.42960 KM • (3)

LONG 2.9297 DEG
LATI -3.4636 DEG

LONG 2.4403 DEG
LATI -4.7392 DEG

LONG 3.4036 DEG
LATI -4.0602 DEG

LONG 3.1845 DEG
LATI -4.6222 DEG

(1) • 18.29061 KM • (2)

HIGH RESOLUTION

4.60974 KM 4.58347 KM

(4) • 18.27769 KM • (3)

LONG 3.2615 DEG
LATI -4.0055 DEG

LONG 3.0432 DEG
LATI -4.5673 DEG

LOW RESOLUTION 108

| INDEX | LONGITUDE | LATITUDE |
|---|---|---|
| 1 | 4.0193776 | -3.8811337 |
| 2 | 3.9687380 | -4.0081077 |
| 3 | 3.9206966 | -4.1288236 |
| 4 | 3.8745929 | -4.2449070 |
| 5 | 3.8298582 | -4.3577639 |
| 6 | 3.7859874 | -4.4686555 |
| 7 | 3.7425123 | -4.5787538 |
| 8 | 3.6989821 | -4.6891971 |
| 9 | 3.6549434 | -4.8011422 |
| 10 | 3.6099211 | -4.9158074 |
| 11 | 3.5633961 | -5.0345340 |
| 12 | 3.5147798 | -5.1588495 |
| 13 | 3.4109082 | -5.1179417 |
| 14 | 3.3107004 | -5.0785461 |
| 15 | 3.2132387 | -5.0402927 |
| 16 | 3.1176972 | -5.0028531 |
| 17 | 3.0233132 | -4.9659291 |
| 18 | 2.9293602 | -4.9292296 |
| 19 | 2.8351253 | -4.8924815 |
| 20 | 2.7398868 | -4.8554012 |
| 21 | 2.6428913 | -4.8177003 |
| 22 | 2.5433291 | -4.7790662 |
| 23 | 2.4403039 | -4.7391591 |
| 24 | 2.4883833 | -4.6154149 |
| 25 | 2.5342062 | -4.4971621 |
| 26 | 2.5783743 | -4.3828828 |
| 27 | 2.6214115 | -4.2712510 |
| 28 | 2.6637917 | -4.1610536 |
| 29 | 2.7059596 | -4.0511414 |
| 30 | 2.7483513 | -3.9403762 |
| 31 | 2.7914130 | -3.8275841 |
| 32 | 2.8356192 | -3.7115017 |
| 33 | 2.8814966 | -3.5907200 |
| 34 | 2.9296504 | -3.4635991 |
| 35 | 3.0338421 | -3.5040765 |
| 36 | 3.1345885 | -3.5431042 |
| 37 | 3.2327922 | -3.5810408 |
| 38 | 3.3292702 | -3.6182090 |
| 39 | 3.4247844 | -3.6549059 |
| 40 | 3.5200660 | -3.6914167 |
| 41 | 3.6158389 | -3.7280154 |
| 42 | 3.7128423 | -3.7649838 |
| 43 | 3.8118545 | -3.8026121 |
| 44 | 3.9137197 | -3.8412138 |

HIGH RESOLUTION 108

| INDEX | LONGITUDE | LATITUDE |
|---|---|---|
| 1 | 3.4036357 | -4.0602101 |
| 2 | 3.3832757 | -4.1124124 |
| 3 | 3.3631379 | -4.1640469 |
| 4 | 3.3431753 | -4.2152341 |
| 5 | 3.3233422 | -4.2660874 |
| 6 | 3.3035947 | -4.3167230 |
| 7 | 3.2838894 | -4.3672519 |
| 8 | 3.2641830 | -4.4177825 |
| 9 | 3.2444326 | -4.4684266 |
| 10 | 3.2245946 | -4.5192953 |
| 11 | 3.2046249 | -4.5705029 |
| 12 | 3.1844780 | -4.6221648 |
| 13 | 3.1716170 | -4.6171659 |
| 14 | 3.1587660 | -4.6121714 |
| 15 | 3.1459228 | -4.6071802 |
| 16 | 3.1330857 | -4.6021925 |
| 17 | 3.1202531 | -4.5972064 |
| 18 | 3.1074230 | -4.5922204 |
| 19 | 3.0945936 | -4.5872369 |
| 20 | 3.0817631 | -4.5822526 |
| 21 | 3.0689299 | -4.5772666 |
| 22 | 3.0560919 | -4.5722796 |
| 23 | 3.0432475 | -4.5672911 |
| 24 | 3.0633368 | -4.5156497 |
| 25 | 3.0832449 | -4.4644608 |
| 26 | 3.1030171 | -4.4136084 |
| 27 | 3.1226976 | -4.3629788 |
| 28 | 3.1423297 | -4.3124610 |
| 29 | 3.1619565 | -4.2619441 |
| 30 | 3.1816208 | -4.2113169 |
| 31 | 3.2013657 | -4.1604705 |
| 32 | 3.2212353 | -4.1092910 |
| 33 | 3.2412745 | -4.0576599 |
| 34 | 3.2615300 | -4.0054602 |
| 35 | 3.2744519 | -4.0104428 |
| 36 | 3.2873677 | -4.0154229 |
| 37 | 3.3002792 | -4.0204004 |
| 38 | 3.3131882 | -4.0253762 |
| 39 | 3.3260967 | -4.0303511 |
| 40 | 3.3390063 | -4.0353243 |
| 41 | 3.3519189 | -4.0402976 |
| 42 | 3.3648363 | -4.0452725 |
| 43 | 3.3777603 | -4.0502492 |
| 44 | 3.3906928 | -4.0552284 |

PHOTO FRAME NUMBER 2 OF 4

## FRAME 109

| | YEAR | MONTH | DAY | HOUR | MINUTE | SECOND |
|---|---|---|---|---|---|---|
| GMT | 67 | 2 | 19 | 4 | 28 | 2.609 |

| | | | | | |
|---|---|---|---|---|---|
| LONGITUDE OF NADIR POINT | = | 3.7111308 DEG | LATITUDE OF NADIR POINT | = | -4.5264266 DEG |
| LONG OF CAMERA AXIS INTERSECT | = | 3.7479288 DEG | LATI OF CAMERA AXIS INTERSECT | = | -4.5122739 DEG |
| SPACECRAFT RADIUS | = | 1789.7392578 KM | SPACECRAFT ALTITUDE | = | 51.6492615 KM |
| MEAN ALTITUDE RATE | = | 0.0896751 KM/SEC | TIME FROM PERIAPSIS | = | 173.5546589 SEC |
| HORIZONTAL VELOCITY | = | 1.9099699 KM/SEC | TRUE ANOMALY | = | 10.6740260 DEG |
| SCALE FACTOR (HIGH) | = | 0.0118072 M/KM | TILT DISTANCE (HIGH) | = | 14.0873297 MM |
| SCALE FACTOR (LOW) | = | 0.0015485 M/KM | TILT DISTANCE (LOW) | = | 1.8475187 MM |
| IMAGE MOTION COMPENSATION (V/H) | = | 0.0369922 RAD/SEC | SWING ANGLE | = | 227.7374325 DEG |
| EMISSION ANGLE | = | 1.3622692 DEG | INCIDENCE ANGLE | = | 61.2016664 DEG |
| PHASE ANGLE | = | 62.4804306 DEG | NORTH DEVIATION ANGLE | = | 338.8293266 DEG |
| TILT ANGLE | = | 1.3229526 DEG | RESOLUTION CONSTANT | = | 1.1210966 MTR |
| TILT AZIMUTH | = | 68.9055614 DEG | SUN AZIMUTH AT PRINCIPAL GND PT | = | 89.1892071 DEG |
| SUN ANGLE AT NADIR | = | 61.2385468 DEG | SUN ARC AT NADIR | = | 1857.6954193 KM |
| LONGITUDE DISTANCE TO TARGET | = | -0.3718692 DEG | LATITUDE DISTANCE TO TARGET | = | 0.2235740 DEG |
| LONGITUDE ARC LENGTH TO TARGET | = | -11.2807995 KM | LATITUDE ARC LENGTH TO TARGET | = | 6.7822047 KM |
| FORWARD OVERLAP RATIO | = | 51.4462533 PCT | SIDE OVERLAP RATIO | = | 0. PCT |
| TIME BETWEEN PHOTOS | = | 8.8998914 SEC | ALPHA | = | -1.2798089 DEG. |

| | X | Y | Z | MAGNITUDE (KM) |
|---|---|---|---|---|
| DIRECTION COSINES TO TARGET | -0.98783670 | 0.14712890 | -0.05031637 | 53.34035349 |
| CAMERA AXIS | -0.99526532 | -0.04296997 | 0.08718106 | 51.66343689 |
| C1 | -0.87685230 | 0.37530909 | 0.30045487 | 59.52644348 |
| C2 | -0.92386981 | 0.11269563 | -0.36573796 | 58.74601746 |
| C3 | -0.88032375 | -0.45117404 | -0.14653360 | 58.03863525 |
| C4 | -0.83330623 | -0.18856062 | 0.51965913 | 58.79989624 |

| | X | Y | Z | X DOT | Y DOT | Z DOT |
|---|---|---|---|---|---|---|
| STATE VECTOR (1950.0) | -53.6992998 | -1595.9998169 | -808.1259995 | 1.7967966 | 0.1600031 | -0.6339937 |

LONG 4.5596 DEG
LATI -4.0699 DEG

(1)

42.44404 KM

LONG 4.0462 DEG
LATI -5.3722 DEG

(2)

LOW RESOLUTION

35.89175 KM

35.42394 KM

(4)

41.92929 KM

(3)

LONG 3.4504 DEG
LATI -3.6513 DEG

LONG 2.9559 DEG
LATI -4.9426 DEG

LONG 3.9314 DEG
LATI -4.2537 DEG

(1)

18.38100 KM

LONG 3.7091 DEG
LATI -4.8247 DEG

(2)

HIGH RESOLUTION

4.68153 KM

4.65469 KM

(4)

18.55146 KM

(3)

LONG 3.7869 DEG
LATI -4.1985 DEG

LONG 3.5657 DEG
LATI -4.7689 DEG

LOW RESOLUTION 109

| INDEX | LONGITUDE | LATITUDE |
|---|---|---|
| 1 | 4.5595871 | -4.0699320 |
| 2 | 4.5080318 | -4.1993667 |
| 3 | 4.4591309 | -4.3224126 |
| 4 | 4.4122089 | -4.4407310 |
| 5 | 4.3666867 | -4.5557574 |
| 6 | 4.3220488 | -4.6687766 |
| 7 | 4.2778184 | -4.7809863 |
| 8 | 4.2335362 | -4.8935478 |
| 9 | 4.1887408 | -5.0076393 |
| 10 | 4.1429487 | -5.1245056 |
| 11 | 4.0956314 | -5.2455143 |
| 12 | 4.0461904 | -5.3722254 |
| 13 | 3.9401326 | -5.3300857 |
| 14 | 3.8379526 | -5.2895571 |
| 15 | 3.7387005 | -5.2502545 |
| 16 | 3.6415253 | -5.2118381 |
| 17 | 3.5456445 | -5.1739929 |
| 18 | 3.4503161 | -5.1364276 |
| 19 | 3.3548162 | -5.0988531 |
| 20 | 3.2584148 | -5.0609857 |
| 21 | 3.1603540 | -5.0225309 |
| 22 | 3.0598222 | -4.9831719 |
| 23 | 2.9559263 | -4.9425673 |
| 24 | 3.0045076 | -4.8172956 |
| 25 | 3.0508091 | -4.6975037 |
| 26 | 3.0954387 | -4.5818983 |
| 27 | 3.1389264 | -4.4688911 |
| 28 | 3.1817506 | -4.3573387 |
| 29 | 3.2243612 | -4.2460741 |
| 30 | 3.2671992 | -4.1339446 |
| 31 | 3.3107151 | -4.0197652 |
| 32 | 3.3553895 | -3.9022518 |
| 33 | 3.4017543 | -3.7799794 |
| 34 | 3.4504220 | -3.6512076 |
| 35 | 3.5558080 | -3.6916378 |
| 36 | 3.6578409 | -3.7305903 |
| 37 | 3.7574234 | -3.7684279 |
| 38 | 3.8553768 | -3.8056814 |
| 39 | 3.9526699 | -3.842[illegible] |
| 40 | [illegible] | -3.87[illegible] |
| 41 | [illegible] | [illegible] |
| 42 | [illegible] | [illegible] |
| 3 | [illegible] | [illegible] |
| [illegible] | [illegible] | [illegible] |

HIGH RESOLUTION 109

| INDEX | LONGITUDE | LATITUDE |
|---|---|---|
| 1 | 3.9314086 | -4.2537085 |
| 2 | 3.9107544 | -4.3067569 |
| 3 | 3.8903266 | -4.3592264 |
| 4 | 3.8700768 | -4.4112400 |
| 5 | 3.8499593 | -4.4629164 |
| 6 | 3.8299290 | -4.5143691 |
| 7 | 3.8099419 | -4.5657141 |
| 8 | 3.7899543 | -4.6170610 |
| 9 | 3.7699226 | -4.6685230 |
| 10 | 3.7498025 | -4.7202130 |
| 11 | 3.7295491 | -4.7722471 |
| 12 | 3.7091163 | -4.8247423 |
| 13 | 3.6960458 | -4.8196504 |
| 14 | 3.6829872 | -4.8145627 |
| 15 | 3.6699389 | -4.8094802 |
| 16 | 3.6568989 | -4.8044011 |
| 17 | 3.6438656 | -4.7993254 |
| 18 | 3.6308370 | -4.7942514 |
| 19 | 3.6178112 | -4.7891783 |
| 20 | 3.6047865 | -4.7841069 |
| 21 | 3.5917609 | -4.7790346 |
| 22 | 3.5787328 | -4.7739615 |
| 23 | 3.5657002 | -4.7688875 |
| 24 | 3.5860569 | -4.7164590 |
| 25 | 3.6062302 | -4.6644897 |
| 26 | 3.6262660 | -4.6128621 |
| 27 | 3.6462094 | -4.5614606 |
| 28 | 3.6661042 | -4.5101719 |
| 29 | 3.6859938 | -4.4588857 |
| 30 | 3.7059219 | -4.4074869 |
| 31 | 3.7259322 | -4.3558634 |
| 32 | 3.7460693 | -4.3039027 |
| 33 | 3.7663788 | -4.2514845 |
| 34 | 3.7869081 | -4.1984864 |
| 35 | 3.8000369 | -4.2035084 |
| 36 | 3.8131617 | -4.2085285 |
| 37 | 3.8262843 | -4.2135471 |
| 38 | 3.8394066 | -4.2185638 |
| 39 | 3.8525304 | -4.2235797 |
| 40 | 3.8656576 | -4.2285965 |
| 41 | 3.8787899 | -4.2336133 |
| [illegible] | [illegible] | [illegible] |
| [illegible] | [illegible] | [illegible] |
| [illegible] | [illegible] | [illegible] |

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* PHOTO FRAME NUMBER 3 OF 4 *
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## FRAME 110

| | YEAR | MONTH | DAY | HOUR | MINUTE | SECOND |
|---|---|---|---|---|---|---|
| GMT | 67 | 2 | 19 | 4 | 28 | 11.700 |

| | | | | | |
|---|---|---|---|---|---|
| LONGITUDE OF NADIR POINT | = | 4.2319571 | DEG | LATITUDE OF NADIR POINT | = -4.7225071 DEG |
| LONG OF CAMERA AXIS INTERSECT | = | 4.2851326 | DEG | LATI OF CAMERA AXIS INTERSECT | = -4.7140086 DEG |
| SPACECRAFT RADIUS | = | 1790.5763702 | KM | SPACECRAFT ALTITUDE | = 52.4863739 KM |
| MEAN ALTITUDE RATE | = | 0.0942831 | KM/SEC | TIME FROM PERIAPSIS | = 182.6439667 SEC |
| HORIZONTAL VELOCITY | = | 1.9090764 | KM/SEC | TRUE ANOMALY | = 11.2295123 DEG |
| SCALE FACTOR (HIGH) | = | 0.0116163 | M/KM | TILT DISTANCE (HIGH) | = 18.9227431 MM |
| SCALE FACTOR (LOW) | = | 0.0015234 | M/KM | TILT DISTANCE (LOW) | = 2.4816712 MM |
| IMAGE MOTION COMPENSATION (V/H) | = | 0.0363884 | RAD/SEC | SWING ANGLE | = 239.7710571 DEG |
| EMISSION ANGLE | = | 1.8305056 | DEG | INCIDENCE ANGLE | = 60.6681271 DEG |
| PHASE ANGLE | = | 62.4804335 | DEG | NORTH DEVIATION ANGLE | = 338.8780518 DEG |
| TILT ANGLE | = | 1.7767963 | DEG | RESOLUTION CONSTANT | = 1.1395189 MTR |
| TILT AZIMUTH | = | 80.8927660 | DEG | SUN AZIMUTH AT PRINCIPAL GND PT | = 89.0291491 DEG |
| SUN ANGLE AT NADIR | = | 60.7212582 | DEG | SUN ARC AT NADIR | = 1842.0332654 KM |
| LONGITUDE DISTANCE TO TARGET | = | 0.1489571 | DEG | LATITUDE DISTANCE TO TARGET | = 0.0274929 DEG |
| LONGITUDE ARC LENGTH TO TARGET | = | 4.5186732 | KM | LATITUDE ARC LENGTH TO TARGET | = 0.8340074 KM |
| FORWARD OVERLAP RATIO | = | 51.1096854 | PCT | SIDE OVERLAP RATIO | = 0. PCT |
| TIME BETWEEN PHOTOS | = | 9.1000915 | SEC | ALPHA | = -1.8126267 DEG. |

| | X | Y | Z | MAGNITUDE (KM) |
|---|---|---|---|---|
| DIRECTION COSINES TO TARGET | -0.98512026 | -0.15859085 | 0.06623453 | 52.69183159 |
| CAMERA AXIS | -0.99526625 | -0.04294770 | 0.08718136 | 52.51239014 |
| C1 | -0.87684380 | 0.37532867 | 0.30045522 | 60.72502136 |
| C2 | -0.92386740 | 0.11271641 | -0.36573765 | 59.92108154 |
| C3 | -0.88033389 | -0.45115429 | -0.14653341 | 58.79275513 |
| C4 | -0.83331030 | -0.18854207 | 0.51965936 | 59.56591797 |

| | X | Y | Z | X DOT | Y DOT | Z DOT |
|---|---|---|---|---|---|---|
| STATE VECTOR (1950.0) | -37.3449502 | -1594.4871216 | -813.8672791 | 1.7971505 | 0.1724156 | -0.6276822 |

LONG 5.1132 DEG
LATI -4.2621 DEG

LONG 4.5904 DEG
LATI -5.5909 DEG

(1) • 43.29599 KM • (2)

LOW RESOLUTION

36.49760 KM 36.01864 KM

(4) • 42.47485 KM • (3)

LONG 3.9829 DEG
LATI -3.8421 DEG

LONG 3.4828 DEG
LATI -5.1505 DEG

LONG 4.4716 DEG
LATI -4.4509 DEG

LONG 4.2459 DEG
LATI -5.0318 DEG

(1) • 18.89508 KM • (2)

HIGH RESOLUTION

4.75971 KM 4.73224 KM

(4) • 18.84796 KM • (3)

LONG 4.3245 DEG
LATI -4.3952 DEG

LONG 4.1001 DEG
LATI -4.9749 DEG

LOW RESOLUTION 110

| INDEX | LONGITUDE | LATITUDE |
|---|---|---|
| 1 | 5.1132369 | -4.2620900 |
| 2 | 5.0606958 | -4.3941790 |
| 3 | 5.0108687 | -4.5197410 |
| 4 | 4.9630659 | -4.6404731 |
| 5 | 4.9166958 | -4.7578414 |
| 6 | 4.8712322 | -4.8731563 |
| 7 | 4.8261892 | -4.9876448 |
| 8 | 4.7810983 | -5.1024919 |
| 9 | 4.7354892 | -5.2189013 |
| 10 | 4.6888689 | -5.3381445 |
| 11 | 4.6406999 | -5.4616164 |
| 12 | 4.5903723 | -5.5909144 |
| 13 | 4.4819421 | -5.5474480 |
| 14 | 4.3776209 | -5.5057010 |
| 15 | 4.2764230 | -5.4652705 |
| 16 | 4.1774698 | -5.4258023 |
| 17 | 4.0799568 | -5.3869701 |
| 18 | 3.9831253 | -5.3484726 |
| 19 | 3.8862379 | -5.3100126 |
| 20 | 3.7885557 | -5.2712991 |
| 21 | 3.6893148 | -5.2320324 |
| 22 | 3.5877013 | -5.1918939 |
| 23 | 3.4828227 | -5.1505371 |
| 24 | 3.5319523 | -5.0235972 |
| 25 | 3.5787763 | -4.9022939 |
| 26 | 3.6239099 | -4.7850716 |
| 27 | 3.6678891 | -4.6705652 |
| 28 | 3.7111979 | -4.5575333 |
| 29 | 3.7542915 | -4.4447916 |
| 30 | 3.7976161 | -4.3311749 |
| 31 | 3.8416275 | -4.2154774 |
| 32 | 3.8868122 | -4.0964033 |
| 33 | 3.9337085 | -3.9725028 |
| 34 | 3.9829367 | -3.8420949 |
| 35 | 4.0896419 | -3.8823366 |
| 36 | 4.1930878 | -3.9212312 |
| 37 | 4.2941785 | -3.9591293 |
| 38 | 4.3937404 | -3.9963445 |
| 39 | 4.4925509 | -4.0331728 |
| 40 | 4.5913638 | -4.0698962 |
| 41 | 4.6909328 | -4.1067946 |
| 42 | 4.7920357 | -4.1441489 |
| 43 | 4.8954987 | -4.1822622 |
| 44 | 5.0022266 | -4.2214555 |

HIGH RESOLUTION 110

| INDEX | LONGITUDE | LATITUDE |
|---|---|---|
| 1 | 4.4715973 | -4.4509234 |
| 2 | 4.4506258 | -4.5048862 |
| 3 | 4.4298847 | -4.5582598 |
| 4 | 4.4093252 | -4.6111693 |
| 5 | 4.3889006 | -4.6637342 |
| 6 | 4.3685652 | -4.7160722 |
| 7 | 4.3482742 | -4.7682984 |
| 8 | 4.3279833 | -4.8205280 |
| 9 | 4.3076479 | -4.8728746 |
| 10 | 4.2872233 | -4.9254534 |
| 11 | 4.2666639 | -4.9783813 |
| 12 | 4.2459229 | -5.0317798 |
| 13 | 4.2326239 | -5.0265871 |
| 14 | 4.2193394 | -5.0214005 |
| 15 | 4.2060675 | -5.0162181 |
| 16 | 4.1928064 | -5.0110416 |
| 17 | 4.1795542 | -5.0058686 |
| 18 | 4.1663090 | -5.0006981 |
| 19 | 4.1530689 | -4.9955302 |
| 20 | 4.1398321 | -4.9903632 |
| 21 | 4.1265967 | -4.9851979 |
| 22 | 4.1133609 | -4.9800326 |
| 23 | 4.1001227 | -4.9748664 |
| 24 | 4.1207684 | -4.9215849 |
| 25 | 4.1412284 | -4.8687696 |
| 26 | 4.1615494 | -4.8163010 |
| 27 | 4.1817768 | -4.7640646 |
| 28 | 4.2019553 | -4.7119417 |
| 29 | 4.2221290 | -4.6598196 |
| 30 | 4.2423422 | -4.6075849 |
| 31 | 4.2626393 | -4.5551222 |
| 32 | 4.2830654 | -4.5023146 |
| 33 | 4.3036671 | -4.4490417 |
| 34 | 4.3244923 | -4.3951797 |
| 35 | 4.3378466 | -4.4002460 |
| 36 | 4.3511989 | -4.4053097 |
| 37 | 4.3645513 | -4.4103726 |
| 38 | 4.3779056 | -4.4154355 |
| 39 | 4.3912636 | -4.4204975 |
| 40 | 4.4046273 | -4.4255621 |
| 41 | 4.4179986 | -4.4306284 |
| 42 | 4.4313794 | -4.4356964 |
| 43 | 4.4447714 | -4.4407678 |
| 44 | 4.4581767 | -4.4458435 |

**********
* PHOTO FRAME NUMBER 4 OF 4 *
**********

## FRAME 111

| | YEAR | MONTH | DAY | HOUR | MINUTE | SECOND |
|---|---|---|---|---|---|---|
| GMT | 67 | 2 | 19 | 4 | 28 | 20.900 |

| | | | | | |
|---|---|---|---|---|---|
| LONGITUDE OF NADIR POINT | = | 4.7582363 | DEG | LATITUDE OF NADIR POINT | = -4.9201318 DEG |
| LONG OF CAMERA AXIS INTERSECT | = | 4.8285483 | DEG | LATI OF CAMERA AXIS INTERSECT | = -4.9175073 DEG |
| SPACECRAFT RADIUS | = | 1791.4651489 | KM | SPACECRAFT ALTITUDE | = 53.3751526 KM |
| MEAN ALTITUDE RATE | = | 0.0989276 | KM/SEC | TIME FROM PERIAPSIS | = 191.8323212 SEC |
| HORIZONTAL VELOCITY | = | 1.9081285 | KM/SEC | TRUE ANOMALY | = 11.7905127 DEG |
| SCALE FACTOR (HIGH) | = | 0.0114192 | M/KM | TILT DISTANCE (HIGH) | = 24.3343831 MM |
| SCALE FACTOR (LOW) | = | 0.0014976 | M/KM | TILT DISTANCE (LOW) | = 3.1874207 MM |
| IMAGE MOTION COMPENSATION (V/H) | = | 0.0357626 | RAD/SEC | SWING ANGLE | = 246.7846622 DEG |
| EMISSION ANGLE | = | 2.3517271 | DEG | INCIDENCE ANGLE | = 60.1291742 DEG |
| PHASE ANGLE | = | 62.4804368 | DEG | NORTH DEVIATION ANGLE | = 338.9311485 DEG |
| TILT ANGLE | = | 2.2816151 | DEG | RESOLUTION CONSTANT | = 1.1591881 MTR |
| TILT AZIMUTH | = | 87.8577223 | DEG | SUN AZIMUTH AT PRINCIPAL GND PT | = 88.8621531 DEG |
| SUN ANGLE AT NADIR | = | 60.1992645 | DEG | SUN ARC AT NADIR | = 1826.1683807 KM |
| LONGITUDE DISTANCE TO TARGET | = | 0.6752363 | DEG | LATITUDE DISTANCE TO TARGET | = -0.1701318 DEG |
| LONGITUDE ARC LENGTH TO TARGET | = | 20.4835601 | KM | LATITUDE ARC LENGTH TO TARGET | = -5.1610152 KM |
| FORWARD OVERLAP RATIO | = | 51.3771191 | PCT | SIDE OVERLAP RATIO | = 0. PCT |
| TIME BETWEEN PHOTOS | = | 9.2000306 | SEC | ALPHA | = -2.3512742 DEG. |

| | X | Y | Z | MAGNITUDE (KM) |
|---|---|---|---|---|
| DIRECTION COSINES TO TARGET | -0.88682073 | -0.43007688 | 0.16906469 | 57.49555588 |
| CAMERA AXIS | -0.99526720 | -0.04292512 | 0.08718164 | 53.41880798 |
| C1 | -0.87683520 | 0.37534852 | 0.30045556 | 62.00205994 |
| C2 | -0.92386495 | 0.11273746 | -0.36573735 | 61.17304993 |
| C3 | -0.88034417 | -0.45113427 | -0.14653325 | 59.60383606 |
| C4 | -0.83331442 | -0.18852326 | 0.51965956 | 60.38977051 |

| | X | Y | Z | X DOT | Y DOT | Z DOT |
|---|---|---|---|---|---|---|
| STATE VECTOR (1950.0) | -20.8100226 | -1592.8432922 | -819.6124649 | 1.7973786 | 0.1849326 | -0.6212664 |

LONG 5.6742 DEG
LATI -4.4554 DEG

(1) * 44.20370 KM * (2)

LONG 5.1413 DEG
LATI -5.8125 DEG

LOW RESOLUTION

37.14981 KM 36.65877 KM

(4) * 43.06160 KM * (3)

LONG 4.5213 DEG
LATI -4.0338 DEG

LONG 4.0151 DEG
LATI -5.3607 DEG

LONG 5.0182 DEG
LATI -4.6496 DEG

(1) * 19.23025 KM * (2)

LONG 4.7889 DEG
LATI -5.2409 DEG

HIGH RESOLUTION

4.84367 KM 4.81552 KM

(4) * 19.16474 KM * (3)

LONG 4.9683 DEG
LATI -4.5933 DEG

LONG 4.6406 DEG
LATI -5.1829 DEG

LOW RESOLUTION 111

| INDEX | LONGITUDE | LATITUDE |
|---|---|---|
| 1 | 5.6742300 | -4.4553861 |
| 2 | 5.6206403 | -4.5903054 |
| 3 | 5.5698282 | -4.7185498 |
| 4 | 5.5210891 | -4.8418527 |
| 5 | 5.4738181 | -4.9617157 |
| 6 | 5.4274776 | -5.0794801 |
| 7 | 5.3815716 | -5.1963967 |
| 8 | 5.3356217 | -5.3136805 |
| 9 | 5.2891484 | -5.4325607 |
| 10 | 5.2416492 | -5.5543354 |
| 11 | 5.1925761 | -5.6804351 |
| 12 | 5.1413075 | -5.8124892 |
| 13 | 5.0303351 | -5.7676105 |
| 14 | 4.9237185 | -5.7245684 |
| 15 | 4.8204333 | -5.6829410 |
| 16 | 4.7195708 | -5.6423551 |
| 17 | 4.6203023 | -5.6024753 |
| 18 | 4.5218507 | -5.5629866 |
| 19 | 4.4234641 | -5.5235859 |
| 20 | 4.3243932 | -5.4839750 |
| 21 | 4.2238667 | -5.4438485 |
| 22 | 4.1210669 | -5.4028810 |
| 23 | 4.0151020 | -5.3607251 |
| 24 | 4.0648214 | -5.2319897 |
| 25 | 4.1122071 | -5.1089737 |
| 26 | 4.1578822 | -4.9900985 |
| 27 | 4.2023892 | -4.8739793 |
| 28 | 4.2462186 | -4.7593534 |
| 29 | 4.2898309 | -4.6450254 |
| 30 | 4.3336780 | -4.5298078 |
| 31 | 4.3782217 | -4.4124805 |
| 32 | 4.4239541 | -4.2917262 |
| 33 | 4.4714211 | -4.1660730 |
| 34 | 4.5212508 | -4.0338209 |
| 35 | 4.6293900 | -4.0739729 |
| 36 | 4.7343642 | -4.1128291 |
| 37 | 4.8370806 | -4.1507341 |
| 38 | 4.9383719 | -4.1880004 |
| 39 | 5.0390254 | -4.2249210 |
| 40 | 5.1398082 | -4.2617801 |
| 41 | 5.2414913 | -4.2988561 |
| 42 | 5.3448749 | -4.3364366 |
| 43 | 5.4508125 | -4.3748257 |
| 44 | 5.5602441 | -4.4143529 |

HIGH RESOLUTION 111

| INDEX | LONGITUDE | LATITUDE |
|---|---|---|
| 1 | 5.0182018 | -4.6496000 |
| 2 | 4.9968926 | -4.7045369 |
| 3 | 4.9758181 | -4.7588753 |
| 4 | 4.9549290 | -4.8127399 |
| 5 | 4.9341775 | -4.8662544 |
| 6 | 4.9135174 | -4.9195367 |
| 7 | 4.8929029 | -4.9727063 |
| 8 | 4.8722890 | -5.0258777 |
| 9 | 4.8516304 | -5.0791685 |
| 10 | 4.8308820 | -5.1326958 |
| 11 | 4.8099969 | -5.1865783 |
| 12 | 4.7889276 | -5.2409406 |
| 13 | 4.7753832 | -5.2356404 |
| 14 | 4.7618560 | -5.2303479 |
| 15 | 4.7483438 | -5.2250605 |
| 16 | 4.7348449 | -5.2197798 |
| 17 | 4.7213574 | -5.2145019 |
| 18 | 4.7078792 | -5.2092298 |
| 19 | 4.6944087 | -5.2039603 |
| 20 | 4.6809437 | -5.1986925 |
| 21 | 4.6674824 | -5.1934264 |
| 22 | 4.6540228 | -5.1881629 |
| 23 | 4.6405634 | -5.1828986 |
| 24 | 4.6615168 | -5.1287044 |
| 25 | 4.6822824 | -5.0749867 |
| 26 | 4.7029071 | -5.0216208 |
| 27 | 4.7234373 | -4.9684895 |
| 28 | 4.7439183 | -4.9154753 |
| 29 | 4.7643948 | -4.8624619 |
| 30 | 4.7849119 | -4.8093325 |
| 31 | 4.8055146 | -4.7559724 |
| 32 | 4.8262488 | -4.7022607 |
| 33 | 4.8471620 | -4.6480751 |
| 34 | 4.8683026 | -4.5932885 |
| 35 | 4.8818988 | -4.5984026 |
| 36 | 4.8954956 | -4.6035141 |
| 37 | 4.9090945 | -4.6086265 |
| 38 | 4.9226978 | -4.6137389 |
| 39 | 4.9363073 | -4.6188521 |
| 40 | 4.9499249 | -4.6239671 |
| 41 | 4.9635524 | -4.6290855 |
| 42 | 4.9771920 | -4.6342072 |
| 43 | 4.9908455 | -4.6393325 |
| 44 | 5.0045148 | -4.6444628 |

**********  **********
* PHOTO FRAME NUMBER 1 OF 4 *
**********  **********

## FRAME 112

| | YEAR | MONTH | DAY | HOUR | MINUTE | SECOND |
|---|---|---|---|---|---|---|
| GMT | 67 | 2 | 19 | 7 | 53 | 44.600 |

| | | | | | |
|---|---|---|---|---|---|
| LONGITUDE OF NADIR POINT | = | -7.8817329 | DEG | LATITUDE OF NADIR POINT | = -0.8498386 DEG |
| LONG OF CAMERA AXIS INTERSECT | = | -8.2562813 | DEG | LATI OF CAMERA AXIS INTERSECT | = -1.7999589 DEG |
| SPACECRAFT RADIUS | = | 1781.9204254 | KM | SPACECRAFT ALTITUDE | = 43.8304291 KM |
| MEAN ALTITUDE RATE | = | 0.0020075 | KM/SEC | TIME FROM PERIAPSIS | = 3.8520073 SEC |
| HORIZONTAL VELOCITY | = | 1.9183161 | KM/SEC | TRUE ANOMALY | = 0.2376002 DEG |
| SCALE FACTOR (HIGH) | = | 0.0113176 | M/KM | TILT DISTANCE (HIGH) | = 428.4337997 MM |
| SCALE FACTOR (LOW) | = | 0.0014843 | M/KM | TILT DISTANCE (LOW) | = 56.1883393 MM |
| IMAGE MOTION COMPENSATION (V/H) | = | 0.0355908 | RAD/SEC | SWING ANGLE | = 0.3257520 DEG |
| EMISSION ANGLE | = | 36.1035504 | DEG | INCIDENCE ANGLE | = 71.4602814 DEG |
| PHASE ANGLE | = | 63.0481519 | DEG | NORTH DEVIATION ANGLE | = 334.3179169 DEG |
| TILT ANGLE | = | 35.0823053 | DEG | RESOLUTION CONSTANT | = 1.1695944 MTR |
| TILT AZIMUTH | = | 201.5057755 | DEG | SUN AZIMUTH AT PRINCIPAL GND PT | = 90.9384422 DEG |
| SUN ANGLE AT NADIR | = | 71.1040630 | DEG | SUN ARC AT NADIR | = 2156.9697571 KM |
| LONGITUDE DISTANCE TO TARGET | = | 0.1512671 | DEG | LATITUDE DISTANCE TO TARGET | = 0.9831614 DEG |
| LONGITUDE ARC LENGTH TO TARGET | = | 4.5887455 | KM | LATITUDE ARC LENGTH TO TARGET | = 29.8245878 KM |
| FORWARD OVERLAP RATIO | = | 0. | PCT | SIDE OVERLAP RATIO | = 0. PCT |
| TIME BETWEEN PHOTOS | = | 0. | SEC | ALPHA | = 3.8317164 DEG. |

| | X | Y | Z | MAGNITUDE (KM) |
|---|---|---|---|---|
| DIRECTION COSINES TO TARGET | -0.83734677 | 0.02925553 | -0.54588873 | 53.42838144 |
| CAMERA AXIS | -0.84725709 | -0.09541962 | -0.52254236 | 53.89836121 |
| C1 | -0.91919795 | 0.01239721 | -0.39360061 | 48.49661255 |
| C2 | -0.73640770 | -0.11796895 | -0.66617341 | 63.14405823 |
| C3 | -0.74699587 | -0.20004696 | -0.63401765 | 63.17149353 |
| C4 | -0.92978610 | -0.06968080 | -0.36144486 | 48.51260376 |

| | X | Y | Z | X DOT | Y DOT | Z DOT |
|---|---|---|---|---|---|---|
| STATE VECTOR (1950.0) | -355.1774063 | -1602.9264679 | -692.6154556 | 1.7683012 | -0.0739311 | -0.7407072 |

LONG -7.5664 DEG
LATI -1.3295 DEG

LONG -7.9081 DEG
LATI -3.3306 DEG

61.57787 KM

(1) (2)

LOW RESOLUTION

28.68672 KM 53.43139 KM

(4) (3)

61.86834 KM

LONG -8.4483 DEG
LATI -0.9875 DEG

LONG -9.5554 DEG
LATI -2.7009 DEG

LONG -8.0637 DEG
LATI -1.5036 DEG

LONG -8.3355 DEG
LATI -2.2585 DEG

24.42179 KM

(1) (2)

HIGH RESOLUTION

4.30655 KM 5.60757 KM

(4) (3)

24.43463 KM

LONG -8.1961 DEG
LATI -1.4494 DEG

LONG -8.5082 DEG
LATI -2.1921 DEG

LOW RESOLUTION 112

| INDEX | LONGITUDE | LATITUDE |
|---|---|---|
| 1 | -7.5664117 | -1.3294741 |
| 2 | -7.5856251 | -1.4390483 |
| 3 | -7.6056648 | -1.5536827 |
| 4 | -7.6268042 | -1.6750228 |
| 5 | -7.6493780 | -1.8050644 |
| 6 | -7.6738062 | -1.9463162 |
| 7 | -7.7006181 | -2.1020171 |
| 8 | -7.7305207 | -2.2764841 |
| 9 | -7.7644770 | -2.4756626 |
| 10 | -7.8038530 | -2.7080487 |
| 11 | -7.8506671 | -2.9863405 |
| 12 | -7.9080612 | -3.3305778 |
| 13 | -8.0654014 | -3.2662912 |
| 14 | -8.2172809 | -3.2050765 |
| 15 | -8.3651818 | -3.1462574 |
| 16 | -8.5104291 | -3.0892484 |
| 17 | -8.6542593 | -3.0335320 |
| 18 | -8.7978504 | -2.9786344 |
| 19 | -8.9423738 | -2.9241090 |
| 20 | -9.0890418 | -2.8695204 |
| 21 | -9.2391318 | -2.8144323 |
| 22 | -9.3940474 | -2.7583889 |
| 23 | -9.5553832 | -2.7009026 |
| 24 | -9.3632808 | -2.4066615 |
| 25 | -9.2085053 | -2.1686482 |
| 26 | -9.0796094 | -1.9697949 |
| 27 | -8.9693769 | -1.7992818 |
| 28 | -8.8730063 | -1.6498637 |
| 29 | -8.7871441 | -1.5164719 |
| 30 | -8.7093652 | -1.3954162 |
| 31 | -8.6378531 | -1.2839355 |
| 32 | -8.5712111 | -1.1798853 |
| 33 | -8.5083221 | -1.0815587 |
| 34 | -8.4482745 | -0.9875480 |
| 35 | -8.3632010 | -1.0203782 |
| 36 | -8.2810681 | -1.0521027 |
| 37 | -8.2011446 | -1.0830050 |
| 38 | -8.1227579 | -1.1133422 |
| 39 | -8.0452865 | -1.1433531 |
| 40 | -7.9681464 | -1.1732634 |
| 41 | -7.8907569 | -1.2032983 |
| 42 | -7.8125274 | -1.2336867 |
| 43 | -7.7328429 | -1.2646684 |
| 44 | -7.6510480 | -1.2965022 |

HIGH RESOLUTION 112

| INDEX | LONGITUDE | LATITUDE |
|---|---|---|
| 1 | -8.0636699 | -1.5006497 |
| 2 | -8.0833101 | -1.5553852 |
| 3 | -8.1036334 | -1.6120228 |
| 4 | -8.1247215 | -1.6707966 |
| 5 | -8.1466670 | -1.7319695 |
| 6 | -8.1695789 | -1.7958369 |
| 7 | -8.1935802 | -1.8627351 |
| 8 | -8.2188007 | -1.9330485 |
| 9 | -8.2454042 | -2.0072210 |
| 10 | -8.2735788 | -2.0857664 |
| 11 | -8.3035325 | -2.1692851 |
| 12 | -8.3355217 | -2.2584822 |
| 13 | -8.3512175 | -2.2524162 |
| 14 | -8.3669064 | -2.2463604 |
| 15 | -8.3825920 | -2.2403097 |
| 16 | -8.3982741 | -2.2342675 |
| 17 | -8.4139528 | -2.2282296 |
| 18 | -8.4296383 | -2.2221969 |
| 19 | -8.4453238 | -2.2161684 |
| 20 | -8.4610196 | -2.2101416 |
| 21 | -8.4767222 | -2.2041182 |
| 22 | -8.4924351 | -2.1980948 |
| 23 | -8.5081615 | -2.1920723 |
| 24 | -8.4713947 | -2.1046690 |
| 25 | -8.4369807 | -2.0228296 |
| 26 | -8.4046193 | -1.9458602 |
| 27 | -8.3740712 | -1.8731751 |
| 28 | -8.3451182 | -1.8042704 |
| 29 | -8.3175753 | -1.7387117 |
| 30 | -8.2912860 | -1.6761198 |
| 31 | -8.2661099 | -1.6161704 |
| 32 | -8.2419276 | -1.5585697 |
| 33 | -8.2186265 | -1.5030617 |
| 34 | -8.1961107 | -1.4494165 |
| 35 | -8.1840520 | -1.4540747 |
| 36 | -8.1720036 | -1.4587312 |
| 37 | -8.1599619 | -1.4633842 |
| 38 | -8.1479237 | -1.4680381 |
| 39 | -8.1358889 | -1.4726921 |
| 40 | -8.1238576 | -1.4773460 |
| 41 | -8.1118262 | -1.4820016 |
| 42 | -8.0997949 | -1.4866598 |
| 43 | -8.0877566 | -1.4913188 |
| 44 | -8.0757184 | -1.4959822 |

**********
* PHOTO FRAME NUMBER 2 OF 4 *
**********

## FRAME 113

| | YEAR | MONTH | DAY | HOUR | MINUTE | SECOND |
|---|---|---|---|---|---|---|
| GMT | 67 | 2 | 19 | 7 | 53 | 46.999 |

| | | | | | |
|---|---|---|---|---|---|
| LONGITUDE OF NADIR POINT | = | -7.7438545 | DEG | LATITUDE OF NADIR POINT | = -3.9029834 DEG |
| LONG OF CAMERA AXIS INTERSECT | = | -8.1149135 | DEG | LATI OF CAMERA AXIS INTERSECT | = -1.8545927 DEG |
| SPACECRAFT RADIUS | = | 1781.9267273 | KM | SPACECRAFT ALTITUDE | = 43.8367310 KM |
| MEAN ALTITUDE RATE | = | 0.0032573 | KM/SEC | TIME FROM PERIAPSIS | = 6.2502028 SEC |
| HORIZONTAL VELOCITY | = | 1.9183093 | KM/SEC | TRUE ANOMALY | = 3.3855244 DEG |
| SCALE FACTOR (HIGH) | = | 0.0113161 | M/KM | TILT DISTANCE (HIGH) | = 428.4186974 MM |
| SCALE FACTOR (LOW) | = | 0.0014841 | M/KM | TILT DISTANCE (LOW) | = 56.1860990 MM |
| IMAGE MOTION COMPENSATION (V/H) | = | 0.0355862 | RAD/SEC | SWING ANGLE | = 0.0681256 DEG |
| EMISSION ANGLE | = | 36.1027122 | DEG | INCIDENCE ANGLE | = 71.3177843 DEG |
| PHASE ANGLE | = | 63.0481510 | DEG | NORTH DEVIATION ANGLE | = 334.3063393 DEG |
| TILT ANGLE | = | 35.0813551 | DEG | RESOLUTION CONSTANT | = 1.1697497 MTR |
| TILT AZIMUTH | = | 201.2928371 | DEG | SUN AZIMUTH AT PRINCIPAL GND PT | = 90.9162998 DEG |
| SUN ANGLE AT NADIR | = | 76.9647379 | DEG | SUN ARC AT NADIR | = 2152.7432556 KM |
| LONGITUDE DISTANCE TO TARGET | = | 0.2891455 | DEG | LATITUDE DISTANCE TO TARGET | = 0.9300166 DEG |
| LONGITUDE ARC LENGTH TO TARGET | = | 8.7713416 | KM | LATITUDE ARC LENGTH TO TARGET | = 28.2124186 KM |
| FORWARD OVERLAP RATIO | = | 5.6365781 | PCT | SIDE OVERLAP RATIO | = 0. PCT |
| TIME BETWEEN PHOTOS | = | 2.3998260 | SEC | ALPHA | = 3.6452741 DEG. |

| | X | Y | Z | MAGNITUDE (KM) |
|---|---|---|---|---|
| DIRECTION COSINES TO TARGET | -0.85362136 | -0.05063897 | -0.51842672 | 53.07056713 |
| CAMERA AXIS | -0.84725769 | -0.09541459 | -0.52254231 | 53.90551758 |
| C1 | -0.91919791 | 0.01240265 | -0.39360053 | 48.50946045 |
| C2 | -0.73640845 | -0.11796457 | -0.66617337 | 63.16314697 |
| C3 | -0.74699710 | -0.20004252 | -0.63401762 | 63.16888428 |
| C4 | -0.92978654 | -0.06967530 | -0.36144479 | 48.51280212 |

| | X | Y | Z | X DOT | Y DOT | Z DOT |
|---|---|---|---|---|---|---|
| STATE VECTOR (1950.0) | -350.9315491 | -1603.0999603 | -694.3921585 | 1.7687363 | -0.0705953 | -0.7392629 |

LONG -7.4247 DEG
LATI -1.3844 DEG

LONG -7.7665 DEG
LATI -3.3896 DEG

* 61.70018 KM *
(1) (2)

LOW RESOLUTION

28.69045 KM 53.43684 KM

(4) 61.76087 KM (3)
*

LONG -8.3065 DEG
LATI -1.0420 DEG

LONG -9.4113 DEG
LATI -2.7526 DEG

LONG -7.9223 DEG
LATI -1.5553 DEG

LONG -8.1942 DEG
LATI -2.3134 DEG

* 24.42997 KM *
(1) (2)

HIGH RESOLUTION

4.30710 KM 5.60824 KM

(4) (3)
* 24.43266 KM *

LONG -8.0547 DEG
LATI -1.5039 DEG

LONG -8.3667 DEG
LATI -2.2465 DEG

LOW RESOLUTION 113

| INDEX | LONGITUDE | LATITUDE |
|---|---|---|
| 1 | -7.4246921 | -1.3844332 |
| 2 | -7.4439055 | -1.4941423 |
| 3 | -7.4639452 | -1.6089287 |
| 4 | -7.4850881 | -1.7304395 |
| 5 | -7.5076687 | -1.8606784 |
| 6 | -7.5321003 | -2.0021598 |
| 7 | -7.5589224 | -2.1581323 |
| 8 | -7.5888386 | -2.3329279 |
| 9 | -7.6228120 | -2.5325129 |
| 10 | -7.6622120 | -2.7654215 |
| 11 | -7.7090602 | -3.0444031 |
| 12 | -7.7665089 | -3.3896000 |
| 13 | -7.9240916 | -3.3244092 |
| 14 | -8.0761077 | -3.2623689 |
| 15 | -8.2240462 | -3.2027858 |
| 16 | -8.3692458 | -3.1450673 |
| 17 | -8.5129393 | -3.0886832 |
| 18 | -8.6563118 | -3.0331538 |
| 19 | -8.8005313 | -2.9780248 |
| 20 | -8.9467998 | -2.9228582 |
| 21 | -9.0963911 | -2.8672092 |
| 22 | -9.2506919 | -2.8106236 |
| 23 | -9.4112834 | -2.7526055 |
| 24 | -9.2197409 | -2.4590439 |
| 25 | -9.0653616 | -2.2215096 |
| 26 | -8.9367628 | -2.0230106 |
| 27 | -8.8267626 | -1.8527699 |
| 28 | -8.7305764 | -1.7035670 |
| 29 | -8.6448678 | -1.5703475 |
| 30 | -8.5672188 | -1.4494370 |
| 31 | -8.4958160 | -1.3380759 |
| 32 | -8.4292694 | -1.2341272 |
| 33 | -8.3664625 | -1.1358886 |
| 34 | -8.3064899 | -1.0419539 |
| 35 | -8.2215565 | -1.0747857 |
| 36 | -8.1395363 | -1.1065214 |
| 37 | -8.0596913 | -1.1374467 |
| 38 | -7.9813560 | -1.1678138 |
| 39 | -7.9039187 | -1.1978623 |
| 40 | -7.8267819 | -1.2278212 |
| 41 | -7.7493720 | -1.2579142 |
| 42 | -7.6711015 | -1.2883709 |
| 43 | -7.5913487 | -1.3194303 |
| 44 | -7.5094582 | -1.3513555 |

HIGH RESOLUTION 113

| INDEX | LONGITUDE | LATITUDE |
|---|---|---|
| 1 | -7.9223192 | -1.5553186 |
| 2 | -7.9419628 | -1.6100719 |
| 3 | -7.9622861 | -1.6667283 |
| 4 | -7.9833777 | -1.7255218 |
| 5 | -8.0053265 | -1.7867151 |
| 6 | -8.0282418 | -1.8506047 |
| 7 | -8.0522430 | -1.9175261 |
| 8 | -8.0774703 | -1.9878668 |
| 9 | -8.1040773 | -2.0620674 |
| 10 | -8.1322519 | -2.1406419 |
| 11 | -8.1622125 | -2.2241938 |
| 12 | -8.1942050 | -2.3134277 |
| 13 | -8.2098906 | -2.3073173 |
| 14 | -8.2255727 | -2.3012154 |
| 15 | -8.2412446 | -2.2951211 |
| 16 | -8.2569131 | -2.2890345 |
| 17 | -8.2725816 | -2.2829531 |
| 18 | -8.2882534 | -2.2768768 |
| 19 | -8.3039253 | -2.2708048 |
| 20 | -8.3196039 | -2.2647361 |
| 21 | -8.3352895 | -2.2586692 |
| 22 | -8.3509853 | -2.2526049 |
| 23 | -8.3666912 | -2.2465405 |
| 24 | -8.3299381 | -2.1591448 |
| 25 | -8.2955309 | -2.0773115 |
| 26 | -8.2631832 | -2.0003472 |
| 27 | -8.2326386 | -1.9276672 |
| 28 | -8.2036922 | -1.8587642 |
| 29 | -8.1761563 | -1.7932081 |
| 30 | -8.1498737 | -1.7306188 |
| 31 | -8.1247045 | -1.6706711 |
| 32 | -8.1005256 | -1.6130712 |
| 33 | -8.0772278 | -1.5575640 |
| 34 | -8.0547190 | -1.5039188 |
| 35 | -8.0426672 | -1.5085915 |
| 36 | -8.0306221 | -1.5132608 |
| 37 | -8.0185839 | -1.5179293 |
| 38 | -8.0065525 | -1.5225985 |
| 39 | -7.9945245 | -1.5272670 |
| 40 | -7.9824966 | -1.5319363 |
| 41 | -7.9704686 | -1.5366073 |
| 42 | -7.9584373 | -1.5412800 |
| 43 | -7.9464024 | -1.5459552 |
| 44 | -7.9343643 | -1.5506348 |

**********
* PHOTO FRAME NUMBER 3 OF 4 *
**********

## FRAME 114

| | YEAR | MONTH | DAY | HOUR | MINUTE | SECOND |
|---|---|---|---|---|---|---|
| GMT | 67 | 2 | 19 | 7 | 53 | 49.400 |

| | | | | | |
|---|---|---|---|---|---|
| LONGITUDE OF NADIR POINT | = | -7.6060219 | DEG | LATITUDE OF NADIR POINT | = -3.9561001 DEG |
| LONG OF CAMERA AXIS INTERSECT | = | -7.9736242 | DEG | LATI OF CAMERA AXIS INTERSECT | = -1.9092709 DEG |
| SPACECRAFT RADIUS | = | 1781.9360524 | KM | SPACECRAFT ALTITUDE | = 43.8460541 KM |
| MEAN ALTITUDE RATE | = | 0.0045066 | KM/SEC | TIME FROM PERIAPSIS | = 8.6474303 SEC |
| HORIZONTAL VELOCITY | = | 1.9182992 | KM/SEC | TRUE ANOMALY | = 0.5333877 DEG |
| SCALE FACTOR (HIGH) | = | 0.0113137 | M/KM | TILT DISTANCE (HIGH) | = 428.4122086 MM |
| SCALE FACTOR (LOW) | = | 0.0014838 | M/KM | TILT DISTANCE (LOW) | = 56.1852078 MM |
| IMAGE MOTION COMPENSATION (V/H) | = | 0.0355788 | RAD/SEC | SWING ANGLE | = 359.8106003 DEG |
| EMISSION ANGLE | = | 36.1025071 | DEG | INCIDENCE ANGLE | = 71.1753912 DEG |
| PHASE ANGLE | = | 63.0481510 | DEG | NORTH DEVIATION ANGLE | = 334.2950401 DEG |
| TILT ANGLE | = | 35.0809469 | DEG | RESOLUTION CONSTANT | = 1.1699938 MTR |
| TILT AZIMUTH | = | 201.0798550 | DEG | SUN AZIMUTH AT PRINCIPAL GND PT | = 90.8938465 DEG |
| SUN ANGLE AT NADIR | = | 70.8254852 | DEG | SUN ARC AT NADIR | = 2148.5189819 KM |
| LONGITUDE DISTANCE TO TARGET | = | 0.4269781 | DEG | LATITUDE DISTANCE TO TARGET | = 0.8768599 DEG |
| LONGITUDE ARC LENGTH TO TARGET | = | 12.9525490 | KM | LATITUDE ARC LENGTH TO TARGET | = 26.6011033 KM |
| FORWARD OVERLAP RATIO | = | 5.6910922 | PCT | SIDE OVERLAP RATIO | = 0. PCT |
| TIME BETWEEN PHOTOS | = | 2.4001479 | SEC | ALPHA | = 3.4588439 DEG. |

| | X | Y | Z | MAGNITUDE (KM) |
|---|---|---|---|---|
| DIRECTION COSINES TO TARGET | -0.86356971 | -0.13064243 | -0.48701122 | 53.10204220 |
| CAMERA AXIS | -0.84725830 | -0.09540959 | -0.52254224 | 53.91676331 |
| C1 | -0.91919787 | 0.01240806 | -0.39360046 | 48.52598572 |
| C2 | -0.73640921 | -0.11796021 | -0.66617330 | 63.18708801 |
| C3 | -0.74699833 | -0.20003810 | -0.63401755 | 63.17112732 |
| C4 | -0.92978699 | -0.06966982 | -0.36144472 | 48.51667786 |

| | X | Y | Z | X DOT | Y DOT | Z DOT |
|---|---|---|---|---|---|---|
| STATE VECTOR (1950.0) | -346.6857185 | -1603.2653961 | -696.1646530 | 1.7694622 | -0.0672606 | -0.7378156 |

LONG -7.2830 DEG
LATI -1.4394 DEG

LONG -7.6250 DEG
LATI -3.4488 DEG

* (1) 61.82783 KM * (2)

LOW RESOLUTION

28.69660 KM 53.44831 KM

(4) * 61.65878 KM * (3)

LONG -8.1648 DEG
LATI -1.0963 DEG

LONG -9.2674 DEG
LATI -2.8044 DEG

LONG -7.7810 DEG
LATI -1.6100 DEG

LONG -8.0530 DEG
LATI -2.3685 DEG

* (1) 24.44005 KM * (2)

HIGH RESOLUTION

4.30801 KM 5.60942 KM

(4) * 24.43258 KM * (3)

LONG -7.9134 DEG
LATI -1.5584 DEG

LONG -8.2253 DEG
LATI -2.3011 DEG

LOW RESOLUTION 114

| INDEX | LONGITUDE | LATITUDE |
|---|---|---|
| 1 | -7.2829964 | -1.4394000 |
| 2 | -7.3022132 | -1.5492534 |
| 3 | -7.3222529 | -1.6642012 |
| 4 | -7.3433992 | -1.7858938 |
| 5 | -7.3659866 | -1.9163402 |
| 6 | -7.3904285 | -2.0580623 |
| 7 | -7.4172575 | -2.2143191 |
| 8 | -7.4471874 | -2.3894580 |
| 9 | -7.4811812 | -2.5894681 |
| 10 | -7.5206085 | -2.8229171 |
| 11 | -7.5674977 | -3.1026142 |
| 12 | -7.6250011 | -3.4488075 |
| 13 | -7.7828399 | -3.3827007 |
| 14 | -7.9350063 | -3.3198245 |
| 15 | -8.0829960 | -3.2594721 |
| 16 | -8.2281580 | -3.2010356 |
| 17 | -8.3717320 | -3.1439787 |
| 18 | -8.5148962 | -3.0878124 |
| 19 | -8.6588253 | -3.0320780 |
| 20 | -8.8047079 | -2.9763283 |
| 21 | -8.9538144 | -2.9201193 |
| 22 | -9.1075209 | -2.8629864 |
| 23 | -9.2673849 | -2.8044364 |
| 24 | -9.0763787 | -2.5115280 |
| 25 | -8.9223852 | -2.2744521 |
| 26 | -8.7940699 | -2.0762895 |
| 27 | -8.6842951 | -1.9063058 |
| 28 | -8.5882865 | -1.7573060 |
| 29 | -8.5027213 | -1.6242488 |
| 30 | -8.4251919 | -1.5034715 |
| 31 | -8.3538949 | -1.3922213 |
| 32 | -8.2874372 | -1.2883675 |
| 33 | -8.2247087 | -1.1902074 |
| 34 | -8.1648046 | -1.0963427 |
| 35 | -8.0800043 | -1.1291762 |
| 36 | -7.9980865 | -1.1609281 |
| 37 | -7.9183167 | -1.1918748 |
| 38 | -7.8400291 | -1.2222768 |
| 39 | -7.7626123 | -1.2523664 |
| 40 | -7.6854790 | -1.2823765 |
| 41 | -7.6080452 | -1.3125284 |
| 42 | -7.5297199 | -1.3430542 |
| 43 | -7.4498955 | -1.3741973 |
| 44 | -7.3678957 | -1.4062155 |

HIGH RESOLUTION 114

| INDEX | LONGITUDE | LATITUDE |
|---|---|---|
| 1 | -7.7810333 | -1.6100087 |
| 2 | -7.8006804 | -1.6647834 |
| 3 | -7.8210104 | -1.7214629 |
| 4 | -7.8421021 | -1.7802802 |
| 5 | -7.8640577 | -1.8415309 |
| 6 | -7.8869764 | -1.9054170 |
| 7 | -7.9109845 | -1.9723691 |
| 8 | -7.9362152 | -2.0427405 |
| 9 | -7.9628291 | -2.1169744 |
| 10 | -7.9910104 | -2.1955856 |
| 11 | -8.0209744 | -2.2791769 |
| 12 | -8.0529739 | -2.3684534 |
| 13 | -8.0686525 | -2.3622977 |
| 14 | -8.0843245 | -2.3561505 |
| 15 | -8.0999861 | -2.3500119 |
| 16 | -8.1156477 | -2.3438801 |
| 17 | -8.1313025 | -2.3377543 |
| 18 | -8.1469607 | -2.3316344 |
| 19 | -8.1626189 | -2.3255188 |
| 20 | -8.1782805 | -2.3194076 |
| 21 | -8.1939524 | -2.3132979 |
| 22 | -8.2096311 | -2.3071918 |
| 23 | -8.2253200 | -2.3010856 |
| 24 | -8.1885736 | -2.2136899 |
| 25 | -8.1541768 | -2.1318548 |
| 26 | -8.1218358 | -2.0548905 |
| 27 | -8.0912981 | -1.9822080 |
| 28 | -8.0623585 | -1.9133042 |
| 29 | -8.0348260 | -1.8477437 |
| 30 | -8.0085469 | -1.7851544 |
| 31 | -7.9833811 | -1.7252016 |
| 32 | -7.9592056 | -1.6675992 |
| 33 | -7.9359113 | -1.6120877 |
| 34 | -7.9134024 | -1.5584400 |
| 35 | -7.9013574 | -1.5631263 |
| 36 | -7.8893157 | -1.5678110 |
| 37 | -7.8772843 | -1.5724931 |
| 38 | -7.8652564 | -1.5771777 |
| 39 | -7.8532284 | -1.5818615 |
| 40 | -7.8412039 | -1.5865453 |
| 41 | -7.8291793 | -1.5912326 |
| 42 | -7.8171514 | -1.5959215 |
| 43 | -7.8051166 | -1.6006130 |
| 44 | -7.7930784 | -1.6053087 |

**********  **********
* PHOTO FRAME NUMBER 4 OF 4 *
**********  **********

## FRAME 115

| | YEAR | MONTH | DAY | HOUR | MINUTE | SECOND |
|---|---|---|---|---|---|---|
| GMT | 67 | 2 | 19 | 7 | 53 | 51.799 |

| | | | | | |
|---|---|---|---|---|---|
| LONGITUDE OF NADIR POINT | = | -7.4681931 | DEG | LATITUDE OF NADIR POINT | = | -1.0092117 | DEG |
| LONG OF CAMERA AXIS INTERSECT | = | -7.8323622 | DEG | LATI OF CAMERA AXIS INTERSECT | = | -1.9640157 | DEG |
| SPACECRAFT RADIUS | = | 1781.9483795 | KM | SPACECRAFT ALTITUDE | = | 43.8583832 | KM |
| MEAN ALTITUDE RATE | = | 0.0057558 | KM/SEC | TIME FROM PERIAPSIS | = | 11.0446382 | SEC |
| HORIZONTAL VELOCITY | = | 1.9182857 | KM/SEC | TRUE ANOMALY | = | 0.6812478 | DEG |
| SCALE FACTOR (HIGH) | = | 0.0113105 | M/KM | TILT DISTANCE (HIGH) | = | 428.4145126 | MM |
| SCALE FACTOR (LOW) | = | 0.0014833 | M/KM | TILT DISTANCE (LOW) | = | 56.1855097 | MM |
| IMAGE MOTION COMPENSATION (V/H) | = | 0.0355684 | RAD/SEC | SWING ANGLE | = | 359.5530815 | DEG |
| EMISSION ANGLE | = | 36.1029472 | DEG | INCIDENCE ANGLE | = | 71.0330467 | DEG |
| PHASE ANGLE | = | 63.0481534 | DEG | NORTH DEVIATION ANGLE | = | 334.2840233 | DEG |
| TILT ANGLE | = | 35.0810919 | DEG | RESOLUTION CONSTANT | = | 1.1703272 | MTR |
| TILT AZIMUTH | = | 200.8667488 | DEG | SUN AZIMUTH AT PRINCIPAL GND PT | = | 90.8710690 | DEG |
| SUN ANGLE AT NADIR | = | 70.6862526 | DEG | SUN ARC AT NADIR | = | 2144.2952881 | KM |
| LONGITUDE DISTANCE TO TARGET | = | 0.5648069 | DEG | LATITUDE DISTANCE TO TARGET | = | 0.8237883 | DEG |
| LONGITUDE ARC LENGTH TO TARGET | = | 17.1336405 | KM | LATITUDE ARC LENGTH TO TARGET | = | 24.9899435 | KM |
| FORWARD OVERLAP RATIO | = | 5.7173392 | PCT | SIDE OVERLAP RATIO | = | 0. | PCT |
| TIME BETWEEN PHOTOS | = | 2.3998260 | SEC | ALPHA | = | 3.2723481 | DEG. |

| | X | Y | Z | MAGNITUDE (KM) |
|---|---|---|---|---|
| DIRECTION COSINES TO TARGET | -0.86700447 | -0.20904470 | -0.45233124 | 53.52169514 |
| CAMERA AXIS | -0.84725889 | -0.09540456 | -0.52254219 | 53.93212891 |
| C1 | -0.91919783 | 0.01241352 | -0.39360040 | 48.54620361 |
| C2 | -0.73640995 | -0.11795583 | -0.66617326 | 63.21588135 |
| C3 | -0.74699955 | -0.20003365 | -0.63401752 | 63.17819214 |
| C4 | -0.92978743 | -0.06966431 | -0.36144466 | 48.52423096 |

| | X | Y | Z | X DOT | Y DOT | Z DOT |
|---|---|---|---|---|---|---|
| STATE VECTOR (1950.0) | -342.4381561 | -1603.4228210 | -697.9336624 | 1.7701793 | -0.0639256 | -0.7363647 |

LONG -7.1413 DEG
LATI -1.4944 DEG

LONG -7.4835 DEG
LATI -3.5082 DEG

(1) * 61.96090 KM * (2)

LOW RESOLUTION

28.70518 KM 53.46579 KM

(4) * 61.56199 KM * (3)

LONG -8.0232 DEG
LATI -1.1507 DEG

LONG -9.1236 DEG
LATI -2.8564 DEG

LONG -7.6398 DEG
LATI -1.6647 DEG

LONG -7.9118 DEG
LATI -2.4236 DEG

(1) * 24.45202 KM * (2)

HIGH RESOLUTION

4.30929 KM 5.61112 KM

(4) * 24.43438 KM * (3)

LONG -7.7721 DEG
LATI -1.6130 DEG

LONG -8.0840 DEG
LATI -2.3557 DEG

LOW RESOLUTION 115

| INDEX | LONGITUDE | LATITUDE |
|---|---|---|
| 1 | -7.1412666 | -1.4943993 |
| 2 | -7.1604868 | -1.6044054 |
| 3 | -7.1805333 | -1.7195231 |
| 4 | -7.2016864 | -1.8414070 |
| 5 | -7.2242773 | -1.9720719 |
| 6 | -7.2487260 | -2.1140459 |
| 7 | -7.2755720 | -2.2706016 |
| 8 | -7.3055156 | -2.4460990 |
| 9 | -7.3395299 | -2.6465523 |
| 10 | -7.3789879 | -2.8805639 |
| 11 | -7.4259147 | -3.1610030 |
| 12 | -7.4834796 | -3.5082250 |
| 13 | -7.6415916 | -3.4411918 |
| 14 | -7.7939185 | -3.3774687 |
| 15 | -7.9419765 | -3.3163377 |
| 16 | -8.0871146 | -3.2571771 |
| 17 | -8.2305758 | -3.1994424 |
| 18 | -8.3735487 | -3.1426349 |
| 19 | -8.5171945 | -3.0862892 |
| 20 | -8.6627083 | -3.0299564 |
| 21 | -8.8113434 | -2.9731821 |
| 22 | -8.9644694 | -2.9155029 |
| 23 | -9.1236265 | -2.8564183 |
| 24 | -8.9331428 | -2.5641341 |
| 25 | -8.7795148 | -2.3274953 |
| 26 | -8.6514760 | -2.1296529 |
| 27 | -8.5419096 | -1.9599125 |
| 28 | -8.4460717 | -1.8111015 |
| 29 | -8.3606466 | -1.6781962 |
| 30 | -8.2832332 | -1.5575427 |
| 31 | -8.2120318 | -1.4463950 |
| 32 | -8.1456596 | -1.3426273 |
| 33 | -8.0830028 | -1.2445390 |
| 34 | -8.0231636 | -1.1507357 |
| 35 | -7.9384897 | -1.1835770 |
| 36 | -7.8566675 | -1.2153442 |
| 37 | -7.7769625 | -1.2463174 |
| 38 | -7.6987193 | -1.2767536 |
| 39 | -7.6213196 | -1.3068884 |
| 40 | -7.5441760 | -1.3369489 |
| 41 | -7.4667115 | -1.3671648 |
| 42 | -7.3883316 | -1.3977632 |
| 43 | -7.3084218 | -1.4289882 |
| 44 | -7.2263127 | -1.4611038 |

HIGH RESOLUTION 115

| INDEX | LONGITUDE | LATITUDE |
|---|---|---|
| 1 | -7.6397577 | -1.6647425 |
| 2 | -7.6594082 | -1.7195436 |
| 3 | -7.6797450 | -1.7762513 |
| 4 | -7.7008435 | -1.8350985 |
| 5 | -7.7228026 | -1.8963482 |
| 6 | -7.7457315 | -1.9602976 |
| 7 | -7.7697430 | -2.0272829 |
| 8 | -7.7949806 | -2.0976911 |
| 9 | -7.8216012 | -2.1719643 |
| 10 | -7.8497894 | -2.2506190 |
| 11 | -7.8797637 | -2.3342564 |
| 12 | -7.9117700 | -2.4235842 |
| 13 | -7.9274453 | -2.4173815 |
| 14 | -7.9431069 | -2.4111891 |
| 15 | -7.9587651 | -2.4050043 |
| 16 | -7.9744130 | -2.3988281 |
| 17 | -7.9900610 | -2.3926570 |
| 18 | -8.0057056 | -2.3864937 |
| 19 | -8.0213501 | -2.3803337 |
| 20 | -8.0370015 | -2.3741788 |
| 21 | -8.0526563 | -2.3680265 |
| 22 | -8.0683213 | -2.3618776 |
| 23 | -8.0839932 | -2.3557279 |
| 24 | -8.0472536 | -2.2683263 |
| 25 | -8.0128602 | -2.1864835 |
| 26 | -7.9805227 | -2.1095116 |
| 27 | -7.9499917 | -2.0368221 |
| 28 | -7.9210522 | -1.9679107 |
| 29 | -7.8935232 | -1.9023443 |
| 30 | -7.8672474 | -1.8397447 |
| 31 | -7.8420815 | -1.7797859 |
| 32 | -7.8179095 | -1.7221741 |
| 33 | -7.7946151 | -1.6666558 |
| 34 | -7.7721063 | -1.6130012 |
| 35 | -7.7600647 | -1.6177012 |
| 36 | -7.7480298 | -1.6224013 |
| 37 | -7.7360019 | -1.6270996 |
| 38 | -7.7239773 | -1.6317970 |
| 39 | -7.7119528 | -1.6364979 |
| 40 | -7.6999282 | -1.6411979 |
| 41 | -7.6879037 | -1.6458997 |
| 42 | -7.6758757 | -1.6506057 |
| 43 | -7.6638443 | -1.6553151 |
| 44 | -7.6518027 | -1.6600262 |

PHOTO FRAME NUMBER OF 4

## FRAME 116

| | YEAR | MONTH | DAY | HOUR | MINUTE | SECOND |
|---|---|---|---|---|---|---|
| GMT | 67 | 2 | 19 | 11 | 23 | 48.899 |

| | | | | | | |
|---|---|---|---|---|---|---|
| LONGITUDE OF NADIR POINT | = | -4.4048615 DEG | LATITUDE OF NADIR POINT | = | -2.9243565 DEG |
| LONG OF CAMERA AXIS INTERSECT | = | -4.4627602 DEG | LATI OF CAMERA AXIS INTERSECT | = | -3.0737874 DEG |
| SPACECRAFT RADIUS | = | 1784.4674225 KM | SPACECRAFT ALTITUDE | = | 46.3774261 KM |
| MEAN ALTITUDE RATE | = | 0.0500680 KM/SEC | TIME FROM PERIAPSIS | = | 96.3623743 SEC |
| HORIZONTAL VELOCITY | = | 1.9156070 KM/SEC | TRUE ANOMALY | = | 5.9376174 DEG |
| SCALE FACTOR (HIGH) | = | 0.0130794 M/KM | TILT DISTANCE (HIGH) | = | 63.9220995 MM |
| SCALE FACTOR (LOW) | = | 0.0017153 M/KM | TILT DISTANCE (LOW) | = | 8.3832250 MM |
| IMAGE MOTION COMPENSATION (V/H) | = | 0.0410733 RAD/SEC | SWING ANGLE | = | 0.0233493 DEG |
| EMISSION ANGLE | = | 6.1424382 DEG | INCIDENCE ANGLE | = | 65.8856268 DEG |
| PHASE ANGLE | = | 63.8255281 DEG | NORTH DEVIATION ANGLE | = | 338.7549210 DEG |
| TILT ANGLE | = | 5.9822095 DEG | RESOLUTION CONSTANT | = | 1.0120489 MTR |
| TILT AZIMUTH | = | 201.1541042 DEG | SUN AZIMUTH AT PRINCIPAL GND PT | = | 90.2244186 DEG |
| SUN ANGLE AT NADIR | = | 65.8284693 DEG | SUN ARC AT NADIR | = | 1996.9325104 KM |
| LONGITUDE DISTANCE TO TARGET | = | -0.7378615 DEG | LATITUDE DISTANCE TO TARGET | = | 0.4086435 DEG |
| LONGITUDE ARC LENGTH TO TARGET | = | -22.3833175 KM | LATITUDE ARC LENGTH TO TARGET | = | 12.3963599 KM |
| FORWARD OVERLAP RATIO | = | 0. PCT | SIDE OVERLAP RATIO | = | 0. PCT |
| TIME BETWEEN PHOTOS | = | 0. SEC | ALPHA | = | 1.9265178 DEG. |

| | X | Y | Z | MAGNITUDE (KM) |
|---|---|---|---|---|
| DIRECTION COSINES TO TARGET | -0.85249165 | 0.48757756 | -0.18848369 | 53.11744785 |
| CAMERA AXIS | -0.99815802 | 0.03916711 | -0.04633041 | 46.63819885 |
| C1 | -0.87541369 | 0.44687966 | 0.18425374 | 50.79676819 |
| C2 | -0.85456531 | 0.18721865 | -0.48442472 | 55.48243713 |
| C3 | -0.88686953 | -0.37772867 | -0.26605168 | 55.48417664 |
| C4 | -0.90771790 | -0.11806771 | 0.40262666 | 50.79823303 |

| | X | Y | Z | X DOT | Y DOT | Z DOT |
|---|---|---|---|---|---|---|
| STATE VECTOR (1950.0) | -188.2569828 | -1603.7116394 | -759.6001053 | 1.7900270 | 0.0570120 | -0.6816228 |

LONG -3.7706 DEG
LATI -2.6935 DEG

(1) * 38.38443 KM * (2)

LONG -4.1830 DEG
LATI -3.8901 DEG

LOW RESOLUTION

30.81093 KM 33.65308 KM

(4) * 38.38560 KM * (3)

LONG -4.7190 DEG
LATI -2.3275 DEG

LONG -5.2198 DEG
LATI -3.4899 DEG

LONG -4.3008 DEG
LATI -2.8442 DEG

(1) * 16.86073 KM * (2)

LONG -4.4989 DEG
LATI -3.3636 DEG

HIGH RESOLUTION

4.13321 KM 4.29626 KM

(4) * 16.86079 KM * (3)

LONG -4.4280 DEG
LATI -2.7951 DEG

LONG -4.6313 DEG
LATI -3.3125 DEG

LOW RESOLUTION 116

| INDEX | LONGITUDE | LATITUDE |
|---|---|---|
| 1 | -3.7706332 | -2.6935414 |
| 2 | -3.8083495 | -2.8018656 |
| 3 | -3.8448364 | -2.9068636 |
| 4 | -3.8805104 | -3.0097271 |
| 5 | -3.9157542 | -3.1115533 |
| 6 | -3.9509365 | -3.2133956 |
| 7 | -3.9864159 | -3.3163078 |
| 8 | -4.0225750 | -3.4213894 |
| 9 | -4.0598165 | -3.5298349 |
| 10 | -4.0985950 | -3.6429915 |
| 11 | -4.1394361 | -3.7624353 |
| 12 | -4.1829785 | -3.8900693 |
| 13 | -4.2826583 | -3.8511082 |
| 14 | -4.3789333 | -3.8135771 |
| 15 | -4.4726707 | -3.7771261 |
| 16 | -4.5646632 | -3.7414418 |
| 17 | -4.6556413 | -3.7062399 |
| 18 | -4.7462984 | -3.6712454 |
| 19 | -4.8373277 | -3.6361937 |
| 20 | -4.9294260 | -3.6008176 |
| 21 | -5.0233308 | -3.5648387 |
| 22 | -5.1198311 | -3.5279608 |
| 23 | -5.2198114 | -3.4898561 |
| 24 | -5.1659657 | -3.3662040 |
| 25 | -5.1156682 | -3.2504118 |
| 26 | -5.0680993 | -3.1406516 |
| 27 | -5.0225863 | -3.0354026 |
| 28 | -4.9785521 | -2.9333613 |
| 29 | -4.9354946 | -2.8333741 |
| 30 | -4.8929493 | -2.7343765 |
| 31 | -4.8504758 | -2.6353431 |
| 32 | -4.8076301 | -2.5352483 |
| 33 | -4.7639647 | -2.4330226 |
| 34 | -4.7189844 | -2.3275030 |
| 35 | -4.6278185 | -2.3629790 |
| 36 | -4.5397500 | -2.3971906 |
| 37 | -4.4539902 | -2.4304528 |
| 38 | -4.3698217 | -2.4630430 |
| 39 | -4.2865788 | -2.4952234 |
| 40 | -4.2036330 | -2.5272382 |
| 41 | -4.1203559 | -2.5593307 |
| 42 | -4.0361124 | -2.5917434 |
| 43 | -3.9502364 | -2.6247306 |
| 44 | -3.8620075 | -2.6585623 |

HIGH RESOLUTION 116

| INDEX | LONGITUDE | LATITUDE |
|---|---|---|
| 1 | -4.3007856 | -2.8442120 |
| 2 | -4.3184553 | -2.8905258 |
| 3 | -4.3360772 | -2.9367115 |
| 4 | -4.3536888 | -2.9828716 |
| 5 | -4.3713278 | -3.0291043 |
| 6 | -4.3890351 | -3.0755146 |
| 7 | -4.4068448 | -3.1221998 |
| 8 | -4.4248013 | -3.1692683 |
| 9 | -4.4429423 | -3.2168286 |
| 10 | -4.4613156 | -3.2649934 |
| 11 | -4.4799654 | -3.3138797 |
| 12 | -4.4989362 | -3.3636145 |
| 13 | -4.5109779 | -3.3589632 |
| 14 | -4.5230092 | -3.3543161 |
| 15 | -4.5350372 | -3.3496707 |
| 16 | -4.5470617 | -3.3450287 |
| 17 | -4.5590829 | -3.3403876 |
| 18 | -4.5711040 | -3.3357491 |
| 19 | -4.5831251 | -3.3311088 |
| 20 | -4.5951497 | -3.3264686 |
| 21 | -4.6071777 | -3.3218274 |
| 22 | -4.6192124 | -3.3171855 |
| 23 | -4.6312541 | -3.3125401 |
| 24 | -4.6117778 | -3.2630007 |
| 25 | -4.5926362 | -3.2143040 |
| 26 | -4.5737814 | -3.1663262 |
| 27 | -4.5551658 | -3.1189486 |
| 28 | -4.5367482 | -3.0720585 |
| 29 | -4.5184808 | -3.0255483 |
| 30 | -4.5003262 | -2.9793139 |
| 31 | -4.4822432 | -2.9332511 |
| 32 | -4.4641911 | -2.8872618 |
| 33 | -4.4461355 | -2.8412434 |
| 34 | -4.4280320 | -2.7950978 |
| 35 | -4.4164515 | -2.7995681 |
| 36 | -4.4048777 | -2.8040368 |
| 37 | -4.3933142 | -2.8085020 |
| 38 | -4.3817507 | -2.8129664 |
| 39 | -4.3701906 | -2.8174282 |
| 40 | -4.3586305 | -2.8218901 |
| 41 | -4.3470704 | -2.8263519 |
| 42 | -4.3355069 | -2.8308145 |
| 43 | -4.3239400 | -2.8352772 |
| 44 | -4.3123662 | -2.8397433 |

**********
* PHOTO FRAME NUMBER 2 OF 4 *
**********

## FRAME 117

| | YEAR | MONTH | DAY | HOUR | MINUTE | SECOND |
|---|---|---|---|---|---|---|
| GMT | 67 | 2 | 19 | 11 | 23 | 57.099 |

| | | | | | |
|---|---|---|---|---|---|
| LONGITUDE OF NADIR POINT | = | -3.9342918 | DEG | LATITUDE OF NADIR POINT | = | -3.1037771 | DEG |
| LONG OF CAMERA AXIS INTERSECT | = | -3.9799614 | DEG | LATI OF CAMERA AXIS INTERSECT | = | -3.2594473 | DEG |
| SPACECRAFT RADIUS | = | 1784.8952789 | KM | SPACECRAFT ALTITUDE | = | 46.8052826 | KM |
| MEAN ALTITUDE RATE | = | 0.0542977 | KM/SEC | TIME FROM PERIAPSIS | = | 104.5530205 | SEC |
| HORIZONTAL VELOCITY | = | 1.9151472 | KM/SEC | TRUE ANOMALY | = | 6.4412720 | DEG |
| SCALE FACTOR (HIGH) | = | 0.0129594 | M/KM | TILT DISTANCE (HIGH) | = | 64.1220331 | MM |
| SCALE FACTOR (LOW) | = | 0.0016996 | M/KM | TILT DISTANCE (LOW) | = | 8.4094470 | MM |
| IMAGE MOTION COMPENSATION (V/H) | = | 0.0406951 | RAD/SEC | SWING ANGLE | = | 355.1959686 | DEG |
| EMISSION ANGLE | = | 6.1630022 | DEG | INCIDENCE ANGLE | = | 65.4018688 | DEG |
| PHASE ANGLE | = | 63.8255305 | DEG | NORTH DEVIATION ANGLE | = | 338.7753372 | DEG |
| TILT ANGLE | = | 6.0007849 | DEG | RESOLUTION CONSTANT | = | 1.0214228 | MTR |
| TILT AZIMUTH | = | 196.3282623 | DEG | SUN AZIMUTH AT PRINCIPAL GND PT | = | 90.1142817 | DEG |
| SUN ANGLE AT NADIR | = | 65.3566647 | DEG | SUN ARC AT NADIR | = | 1982.6201630 | KM |
| LONGITUDE DISTANCE TO TARGET | = | -0.2672918 | DEG | LATITUDE DISTANCE TO TARGET | = | 0.2292229 | DEG |
| LONGITUDE ARC LENGTH TO TARGET | = | -8.1084032 | KM | LATITUDE ARC LENGTH TO TARGET | = | 6.9535676 | KM |
| FORWARD OVERLAP RATIO | = | 51.1119089 | PCT | SIDE OVERLAP RATIO | = | 0. | PCT |
| TIME BETWEEN PHOTOS | = | 8.1998348 | SEC | ALPHA | = | 1.4320188 | DEG. |

| | X | Y | Z | MAGNITUDE (KM) |
|---|---|---|---|---|
| DIRECTION COSINES TO TARGET | -0.96754735 | 0.23543804 | -0.09176631 | 48.03840446 |
| CAMERA AXIS | -0.99815725 | 0.03918724 | -0.04633014 | 47.07017517 |
| C1 | -0.87540464 | 0.44689726 | 0.18425406 | 51.42404175 |
| C2 | -0.85456167 | 0.18723598 | -0.48442445 | 56.18341064 |
| C3 | -0.88687721 | -0.37771074 | -0.26605153 | 55.81590271 |
| C4 | -0.90772018 | -0.11804950 | 0.40262687 | 51.11694336 |

| | X | Y | Z | X DOT | Y DOT | Z DOT |
|---|---|---|---|---|---|---|
| STATE VECTOR (1950.0) | -173.5752201 | -1603.1976929 | -765.1666336 | 1.7913075 | 0.0683533 | -0.6762269 |

LONG -3.2795 DEG
LATI -2.8747 DEG

(1) •

38.86576 KM

LONG -3.6963 DEG
LATI -4.0865 DEG

• (2)

LOW RESOLUTION

31.09919 KM

33.96807 KM

(4) •

38.61885 KM

(3) •

LONG -4.2380 DEG
LATI -2.5082 DEG

LONG -4.7413 DEG
LATI -3.6779 DEG

LONG -3.8165 DEG
LATI -3.0276 DEG

(1) •

17.02402 KM

LONG -4.0164 DEG
LATI -3.5522 DEG

• (2)

HIGH RESOLUTION

4.17169 KM

4.33625 KM

(4) •

17.00993 KM

(3) •

LONG -3.9459 DEG
LATI -2.9782 DEG

LONG -4.1498 DEG
LATI -3.5003 DEG

LOW RESOLUTION 117

| INDEX | LONGITUDE | LATITUDE |
|---|---|---|
| 1 | -3.2794777 | -2.8746626 |
| 2 | -3.3176107 | -2.9843384 |
| 3 | -3.3544971 | -3.0906495 |
| 4 | -3.3905605 | -3.1948039 |
| 5 | -3.4261902 | -3.2979141 |
| 6 | -3.4617549 | -3.4010440 |
| 7 | -3.4976203 | -3.5052641 |
| 8 | -3.5341720 | -3.6116879 |
| 9 | -3.5718166 | -3.7215258 |
| 10 | -3.6110151 | -3.8361458 |
| 11 | -3.6523001 | -3.9571452 |
| 12 | -3.6963139 | -4.0864543 |
| 13 | -3.7973870 | -4.0464396 |
| 14 | -3.8948812 | -4.0079404 |
| 15 | -3.9896910 | -3.9705955 |
| 16 | -4.0826225 | -3.9340822 |
| 17 | -4.1744169 | -3.8981016 |
| 18 | -4.2657843 | -3.8623754 |
| 19 | -4.3574147 | -3.8266331 |
| 20 | -4.4500184 | -3.7906004 |
| 21 | -4.5443195 | -3.7539966 |
| 22 | -4.6411135 | -3.7165236 |
| 23 | -4.7412713 | -3.6778502 |
| 24 | -4.6871797 | -3.5534443 |
| 25 | -4.6366465 | -3.4369409 |
| 26 | -4.5888523 | -3.3265018 |
| 27 | -4.5431207 | -3.2205955 |
| 28 | -4.4988748 | -3.1179138 |
| 29 | -4.4556055 | -3.0172949 |
| 30 | -4.4128451 | -2.9176655 |
| 31 | -4.3701530 | -2.8179960 |
| 32 | -4.3270887 | -2.7172550 |
| 33 | -4.2831945 | -2.6143641 |
| 34 | -4.2379752 | -2.5081513 |
| 35 | -4.1463414 | -2.5434847 |
| 36 | -4.0577197 | -2.5775972 |
| 37 | -3.9713246 | -2.6107979 |
| 38 | -3.8864391 | -2.6433634 |
| 39 | -3.8024004 | -2.6755515 |
| 40 | -3.7185701 | -2.7076090 |
| 41 | -3.6343129 | -2.7397758 |
| 42 | -3.5489867 | -2.7722977 |
| 43 | -3.4619086 | -2.8054310 |
| 44 | -3.3723444 | -2.8394504 |

HIGH RESOLUTION 117

| INDEX | LONGITUDE | LATITUDE |
|---|---|---|
| 1 | -3.8165184 | -3.0276392 |
| 2 | -3.8343418 | -3.0744089 |
| 3 | -3.8521173 | -3.1210506 |
| 4 | -3.8698792 | -3.1676649 |
| 5 | -3.8876719 | -3.2143536 |
| 6 | -3.9055294 | -3.2612206 |
| 7 | -3.9234928 | -3.3083677 |
| 8 | -3.9416031 | -3.3558998 |
| 9 | -3.9599012 | -3.4039297 |
| 10 | -3.9784314 | -3.4525692 |
| 11 | -3.9972418 | -3.5019404 |
| 12 | -4.0163732 | -3.5521679 |
| 13 | -4.0285274 | -3.5474440 |
| 14 | -4.0406749 | -3.5427234 |
| 15 | -4.0528122 | -3.5380055 |
| 16 | -4.0649426 | -3.5332927 |
| 17 | -4.0770696 | -3.5285815 |
| 18 | -4.0891932 | -3.5238721 |
| 19 | -4.1013168 | -3.5191635 |
| 20 | -4.1134438 | -3.5144550 |
| 21 | -4.1255708 | -3.5097464 |
| 22 | -4.1377012 | -3.5050370 |
| 23 | -4.1498384 | -3.5003268 |
| 24 | -4.1302119 | -3.4503392 |
| 25 | -4.1109200 | -3.4012028 |
| 26 | -4.0919184 | -3.3527921 |
| 27 | -4.0731593 | -3.3049867 |
| 28 | -4.0545949 | -3.2576740 |
| 29 | -4.0361875 | -3.2107438 |
| 30 | -4.0178894 | -3.1640919 |
| 31 | -3.9996631 | -3.1176133 |
| 32 | -3.9814709 | -3.0712082 |
| 33 | -3.9632718 | -3.0247740 |
| 34 | -3.9450216 | -2.9782109 |
| 35 | -3.9333385 | -2.9827077 |
| 36 | -3.9216589 | -2.9872020 |
| 37 | -3.9099827 | -2.9916945 |
| 38 | -3.8983099 | -2.9961854 |
| 39 | -3.8866371 | -3.0006754 |
| 40 | -3.8749609 | -3.0051662 |
| 41 | -3.8632847 | -3.0096571 |
| 42 | -3.8516051 | -3.0141496 |
| 43 | -3.8399186 | -3.0186430 |
| 44 | -3.8282219 | -3.0231407 |

**********
* PHOTO FRAME NUMBER 3 OF 4 *
**********

## FRAME 118

| | YEAR | MONTH | DAY | HOUR | MINUTE | SECOND |
|---|---|---|---|---|---|---|
| GMT | 67 | 2 | 19 | 11 | 24 | 5.400 |

| | | | | | |
|---|---|---|---|---|---|
| LONGITUDE OF NADIR POINT | = | -3.4580040 | DEG | LATITUDE OF NADIR POINT | = -3.2851024 DEG |
| LONG OF CAMERA AXIS INTERSECT | = | -3.4910804 | DEG | LATI OF CAMERA AXIS INTERSECT | = -3.4472937 DEG |
| SPACECRAFT RADIUS | = | 1785.3636780 | KM | SPACECRAFT ALTITUDE | = 47.2736816 KM |
| MEAN ALTITUDE RATE | = | 0.0585730 | KM/SEC | TIME FROM PERIAPSIS | = 112.8446407 SEC |
| HORIZONTAL VELOCITY | = | 1.9146443 | KM/SEC | TRUE ANOMALY | = 6.9508770 DEG |
| SCALE FACTOR (HIGH) | = | 0.0128295 | M/KM | TILT DISTANCE (HIGH) | = 64.7826710 MM |
| SCALE FACTOR (LOW) | = | 0.0016825 | M/KM | TILT DISTANCE (LOW) | = 8.4963886 MM |
| IMAGE MOTION COMPENSATION (V/H) | = | 0.0402836 | RAD/SEC | SWING ANGLE | = 350.3757896 DEG |
| EMISSION ANGLE | = | 6.2276769 | DEG | INCIDENCE ANGLE | = 64.9124716 DEG |
| PHASE ANGLE | = | 63.8255334 | DEG | NORTH DEVIATION ANGLE | = 338.7992491 DEG |
| TILT ANGLE | = | 6.0621520 | DEG | RESOLUTION CONSTANT | = 1.0317658 MTR |
| TILT AZIMUTH | = | 191.5081120 | DEG | SUN AZIMUTH AT PRINCIPAL GND PT | = 89.9988670 DEG |
| SUN ANGLE AT NADIR | = | 64.8795462 | DEG | SUN ARC AT NADIR | = 1968.1465759 KM |
| LONGITUDE DISTANCE TO TARGET | = | 0.2089960 | DEG | LATITUDE DISTANCE TO TARGET | = 0.0478976 DEG |
| LONGITUDE ARC LENGTH TO TARGET | = | 6.3399758 | KM | LATITUDE ARC LENGTH TO TARGET | = 1.4529937 KM |
| FORWARD OVERLAP RATIO | = | 50.9642043 | PCT | SIDE OVERLAP RATIO | = 0. PCT |
| TIME BETWEEN PHOTOS | = | 8.3002567 | SEC | ALPHA | = 0.9311639 DEG. |

| | X | Y | Z | MAGNITUDE (KM) |
|---|---|---|---|---|
| DIRECTION COSINES TO TARGET | -0.99701209 | -0.07260670 | 0.02636581 | 47.72973967 |
| CAMERA AXIS | -0.99815645 | 0.03920765 | -0.04632986 | 47.54681396 |
| C1 | -0.87539545 | 0.44691513 | 0.18425439 | 52.10627747 |
| C2 | -0.85455797 | 0.18725356 | -0.48442419 | 56.94529724 |
| C3 | -0.88688499 | -0.37769256 | -0.26605137 | 56.19624329 |
| C4 | -0.90772248 | -0.11803102 | 0.40262710 | 51.48036194 |

| | X | Y | Z | X DOT | Y DOT | Z DOT |
|---|---|---|---|---|---|---|
| STATE VECTOR (1950.0) | -158.7023792 | -1602.5827484 | -770.7565155 | 1.7924969 | 0.0798217 | -0.6707287 |

LONG -2.7815 DEG
LATI -3.0576 DEG

LONG -3.2032 DEG
LATI -4.2860 DEG

(1) * 39.38904 KM * (2)

LOW RESOLUTION

31.42060 KM 34.32009 KM

(4) * 38.88579 KM * (3)

LONG -3.7512 DEG
LATI -2.6903 DEG

LONG -4.2573 DEG
LATI -3.8684 DEG

LONG -3.3260 DEG
LATI -3.2130 DEG

LONG -3.5277 DEG
LATI -3.7432 DEG

(1) * 17.20371 KM * (2)

HIGH RESOLUTION

4.21449 KM 4.38077 KM

(4) * 17.17501 KM * (3)

LONG -3.4559 DEG
LATI -3.1632 DEG

LONG -3.6625 DEG
LATI -3.6905 DEG

LOW RESOLUTION 118

| INDEX | LONGITUDE | LATITUDE |
|---|---|---|
| 1 | -2.7814579 | -3.0575657 |
| 2 | -2.8200450 | -3.1687125 |
| 3 | -2.8573652 | -3.2764545 |
| 4 | -2.8938555 | -3.3820134 |
| 5 | -2.9299018 | -3.4865178 |
| 6 | -2.9658832 | -3.5910479 |
| 7 | -3.0021686 | -3.6966904 |
| 8 | -3.0391438 | -3.8045724 |
| 9 | -3.0772256 | -3.9159250 |
| 10 | -3.1168782 | -4.0321338 |
| 11 | -3.1586448 | -4.1548236 |
| 12 | -3.2031708 | -4.2859564 |
| 13 | -3.2507671 | -4.2448156 |
| 14 | -3.4045965 | -4.2052859 |
| 15 | -3.5005880 | -4.1669899 |
| 16 | -3.5945577 | -4.1295912 |
| 17 | -3.6872673 | -4.0927824 |
| 18 | -3.7794339 | -4.0562785 |
| 19 | -3.8717610 | -4.0197976 |
| 20 | -3.9649555 | -3.9830657 |
| 21 | -4.0597448 | -3.9457951 |
| 22 | -4.1569213 | -3.9076844 |
| 23 | -4.2573422 | -3.8684022 |
| 24 | -4.3629603 | -3.7431314 |
| 25 | -4.1521538 | -3.6258144 |
| 26 | -4.1041001 | -3.5145959 |
| 27 | -4.0581124 | -3.4079407 |
| 28 | -4.0136172 | -3.3045274 |
| 29 | -3.9700986 | -3.2031862 |
| 30 | -3.9270923 | -3.1028388 |
| 31 | -3.8841509 | -3.0024453 |
| 32 | -3.8408304 | -2.9009666 |
| 33 | -3.7966699 | -2.7973176 |
| 34 | -3.7511740 | -2.6903175 |
| 35 | -3.6589869 | -2.7255332 |
| 36 | -3.5697266 | -2.7595697 |
| 37 | -3.4826075 | -2.7927320 |
| 38 | -3.3969194 | -2.8252940 |
| 39 | -3.3119928 | -2.8575138 |
| 40 | -3.2271858 | -2.8896344 |
| 41 | -3.1418528 | -2.9218994 |
| 42 | -3.0553416 | -2.9545537 |
| 43 | -2.9669556 | -2.9878585 |
| 44 | -2.8759433 | -3.0220923 |

HIGH RESOLUTION 118

| INDEX | LONGITUDE | LATITUDE |
|---|---|---|
| 1 | -3.3260118 | -3.2130353 |
| 2 | -3.3440059 | -3.2603062 |
| 3 | -3.3619488 | -3.3074473 |
| 4 | -3.3798781 | -3.3545628 |
| 5 | -3.3978381 | -3.4017535 |
| 6 | -3.4158629 | -3.4491217 |
| 7 | -3.4339971 | -3.4967751 |
| 8 | -3.4522781 | -3.5448194 |
| 9 | -3.4707469 | -3.5933659 |
| 10 | -3.4894514 | -3.6425296 |
| 11 | -3.5084359 | -3.6924326 |
| 12 | -3.5277483 | -3.7432023 |
| 13 | -3.5430289 | -3.7383981 |
| 14 | -3.5522994 | -3.7335999 |
| 15 | -3.5645562 | -3.7288060 |
| 16 | -3.5768095 | -3.7240146 |
| 17 | -3.5890560 | -3.7192275 |
| 18 | -3.6012957 | -3.7144429 |
| 19 | -3.6135354 | -3.7096609 |
| 20 | -3.6257717 | -3.7048781 |
| 21 | -3.6380114 | -3.7000978 |
| 22 | -3.6502511 | -3.6953158 |
| 23 | -3.6624942 | -3.6905338 |
| 24 | -3.6427003 | -3.6406502 |
| 25 | -3.6232445 | -3.5904281 |
| 26 | -3.6040790 | -3.5415384 |
| 27 | -3.5851594 | -3.4932601 |
| 28 | -3.5664378 | -3.4454786 |
| 29 | -3.5478730 | -3.3980839 |
| 30 | -3.5294148 | -3.3509701 |
| 31 | -3.5110314 | -3.3040314 |
| 32 | -3.4926821 | -3.2571660 |
| 33 | -3.4743225 | -3.2102725 |
| 34 | -3.4559152 | -3.1632484 |
| 35 | -3.4441126 | -3.1677742 |
| 36 | -3.4323134 | -3.1722975 |
| 37 | -3.4205143 | -3.1768208 |
| 38 | -3.4087186 | -3.1813424 |
| 39 | -3.3969194 | -3.1858648 |
| 40 | -3.3851202 | -3.1903881 |
| 41 | -3.3733143 | -3.1949123 |
| 42 | -3.3615015 | -3.1994381 |
| 43 | -3.3496818 | -3.2039666 |
| 44 | -3.3378519 | -3.2084992 |

**********
* PHOTO FRAME NUMBER 4 OF 4 *
**********

## FRAME 119

| | YEAR | MONTH | DAY | HOUR | MINUTE | SECOND |
|---|---|---|---|---|---|---|
| GMT | 67 | 2 | 19 | 11 | 24 | 13.899 |

| | | | | | |
|---|---|---|---|---|---|
| LONGITUDE OF NADIR POINT | = | -2.9703255 | DEG | LATITUDE OF NADIR POINT | = -3.4704575 DEG |
| LONG OF CAMERA AXIS INTERSECT | = | -2.9902431 | DEG | LATI OF CAMERA AXIS INTERSECT | = -3.6395712 DEG |
| SPACECRAFT RADIUS | = | 1785.8801422 | KM | SPACECRAFT ALTITUDE | = 47.7901459 KM |
| MEAN ALTITUDE RATE | = | 0.0629442 | KM/SEC | TIME FROM PERIAPSIS | = 121.3362141 SEC |
| HORIZONTAL VELOCITY | = | 1.9140901 | KM/SEC | TRUE ANOMALY | = 7.4724834 DEG |
| SCALE FACTOR (HIGH) | = | 0.0126882 | M/KM | TILT DISTANCE (HIGH) | = 65.9225864 MM |
| SCALE FACTOR (LOW) | = | 0.0016640 | M/KM | TILT DISTANCE (LOW) | = 8.6455852 MM |
| IMAGE MOTION COMPENSATION (V/H) | = | 0.0398341 | RAD/SEC | SWING ANGLE | = 345.5754700 DEG |
| EMISSION ANGLE | = | 6.3382924 | DEG | INCIDENCE ANGLE | = 64.4116106 DEG |
| PHASE ANGLE | = | 63.8255358 | DEG | NORTH DEVIATION ANGLE | = 338.8270950 DEG |
| TILT ANGLE | = | 6.1680064 | DEG | RESOLUTION CONSTANT | = 1.0432519 MTR |
| TILT AZIMUTH | = | 186.7062626 | DEG | SUN AZIMUTH AT PRINCIPAL GND PT | = 89.8765373 DEG |
| SUN ANGLE AT NADIR | = | 64.3914776 | DEG | SUN ARC AT NADIR | = 1953.3408051 KM |
| LONGITUDE DISTANCE TO TARGET | = | 0.6966745 | DEG | LATITUDE DISTANCE TO TARGET | = -0.1374575 DEG |
| LONGITUDE ARC LENGTH TO TARGET | = | 21.1338956 | KM | LATITUDE ARC LENGTH TO TARGET | = -4.1698261 KM |
| FORWARD OVERLAP RATIO | = | 50.2953544 | PCT | SIDE OVERLAP RATIO | = 0. PCT |
| TIME BETWEEN PHOTOS | = | 8.4998131 | SEC | ALPHA | = 0.4179459 DEG. |

| | X | Y | Z | MAGNITUDE (KM) |
|---|---|---|---|---|
| DIRECTION COSINES TO TARGET | -0.92548198 | -0.35417691 | 0.13431983 | 52.52690172 |
| CAMERA AXIS | -0.99815565 | 0.03922851 | -0.04632969 | 48.07612610 |
| C1 | -0.87538607 | 0.44693337 | 0.18425471 | 52.85485840 |
| C2 | -0.85455418 | 0.18727150 | -0.48442392 | 57.78089905 |
| C3 | -0.88689295 | -0.37767398 | -0.26605122 | 56.63192749 |
| C4 | -0.90772483 | -0.11801216 | 0.40262731 | 51.89483643 |

| | X | Y | Z | X DOT | Y DOT | Z DOT |
|---|---|---|---|---|---|---|
| STATE VECTOR (1950.0) | -143.4613724 | -1601.8544006 | -776.4336472 | 1.7936037 | 0.0915518 | -0.6650616 |

LONG -2.2705 DEG
LATI -3.2444 DEG

LONG -2.6976 DEG
LATI -4.4910 DEG

(1) * 39.96303 KM * (2)

LOW RESOLUTION

31.78083 KM 34.71549 KM

(4) * 39.19112 KM * (3)

LONG -3.2528 DEG
LATI -2.8761 DEG

LONG -3.7622 DEG
LATI -4.0638 DEG

LONG -2.8234 DEG
LATI -3.4026 DEG

LONG -3.0272 DEG
LATI -3.9390 DEG

(1) * 17.40281 KM * (2)

HIGH RESOLUTION

4.26236 KM 4.43059 KM

(4) * 17.35880 KM * (3)

LONG -2.9548 DEG
LATI -3.3524 DEG

LONG -3.1634 DEG
LATI -3.8854 DEG

LOW RESOLUTION 119

| INDEX | LONGITUDE | LATITUDE |
|---|---|---|
| 1 | -2.2705461 | -3.2443970 |
| 2 | -2.3096318 | -3.3571583 |
| 3 | -2.3474301 | -3.4664686 |
| 4 | -2.3843848 | -3.5735686 |
| 5 | -2.4208888 | -3.6796038 |
| 6 | -2.4573244 | -3.7856716 |
| 7 | -2.4940674 | -3.8928714 |
| 8 | -2.5315105 | -4.0023550 |
| 9 | -2.5700738 | -4.1153674 |
| 10 | -2.6102251 | -4.2333213 |
| 11 | -2.6525142 | -4.3578655 |
| 12 | -2.6976036 | -4.4909970 |
| 13 | -2.7458733 | -4.6486413 |
| 14 | -2.8021815 | -4.8079999 |
| 15 | -2.8994809 | -4.9686794 |
| 16 | -3.0946084 | -5.1303253 |
| 17 | -3.1883493 | -5.2926261 |
| 18 | -3.2814243 | -5.4552820 |
| 19 | -3.3745505 | -5.6180080 |
| 20 | -3.4684315 | -5.7805196 |
| 21 | -3.5638082 | -5.9425293 |
| 22 | -3.6614629 | -6.1037287 |
| 23 | -3.7622491 | -6.2637875 |
| 24 | -3.8675291 | -6.4225255 |
| 25 | -3.9784017 | -6.5792752 |
| 26 | -4.0980405 | -6.7331696 |
| 27 | -4.2317592 | -6.8825565 |
| 28 | -4.3869702 | -7.0254073 |
| 29 | -4.5731682 | -7.1582447 |
| 30 | -4.7998750 | -7.2770760 |
| 31 | -5.0766434 | -7.3771568 |
| 32 | -5.4130292 | -7.4540406 |
| 33 | -5.8185681 | -7.5040285 |
| 34 | -6.2927546 | -7.5241320 |
| 35 | -6.8349152 | -7.5112511 |
| 36 | -7.4439138 | -7.4652339 |
| 37 | -8.1179752 | -7.3883808 |
| 38 | -8.8533820 | -7.2859625 |
| 39 | -9.6455651 | -7.1632343 |
| 40 | -10.4880720 | -7.0254437 |
| 41 | -11.3722506 | -6.8778308 |
| 42 | -12.2859315 | -6.7256456 |
| 43 | -13.2144111 | -6.5741502 |
| 44 | -14.1418039 | -6.4286281 |

HIGH RESOLUTION 119

| INDEX | LONGITUDE | LATITUDE |
|---|---|---|
| 1 | -2.8233679 | -3.4025816 |
| 2 | -2.8415499 | -3.4504083 |
| 3 | -2.8596772 | -3.4981044 |
| 4 | -2.8777943 | -3.5457740 |
| 5 | -2.8959421 | -3.5935187 |
| 6 | -2.9141514 | -3.6414470 |
| 7 | -2.9324734 | -3.6896613 |
| 8 | -2.9509422 | -3.7382717 |
| 9 | -2.9696023 | -3.7873902 |
| 10 | -2.9884980 | -3.8371336 |
| 11 | -3.0076772 | -3.8876266 |
| 12 | -3.0271876 | -3.9389974 |
| 13 | -3.0396083 | -3.9341061 |
| 14 | -3.0520188 | -3.9292234 |
| 15 | -3.0644155 | -3.9243449 |
| 16 | -3.0768021 | -3.9194707 |
| 17 | -3.0891818 | -3.9146016 |
| 18 | -3.1015547 | -3.9097351 |
| 19 | -3.1139207 | -3.9048712 |
| 20 | -3.1262868 | -3.9000089 |
| 21 | -3.1386495 | -3.8951492 |
| 22 | -3.1510155 | -3.8902887 |
| 23 | -3.1633816 | -3.8854282 |
| 24 | -3.1433964 | -3.8343956 |
| 25 | -3.1237596 | -3.7842304 |
| 26 | -3.1044131 | -3.7348063 |
| 27 | -3.0853125 | -3.6860012 |
| 28 | -3.0664099 | -3.6376989 |
| 29 | -3.0476679 | -3.5897869 |
| 30 | -3.0290352 | -3.5421591 |
| 31 | -3.0104775 | -3.4947089 |
| 32 | -2.9919541 | -3.4473322 |
| 33 | -2.9734169 | -3.3999264 |
| 34 | -2.9548354 | -3.3523891 |
| 35 | -2.9428996 | -3.3569483 |
| 36 | -2.9309639 | -3.3615066 |
| 37 | -2.9190316 | -3.3660631 |
| 38 | -2.9070958 | -3.3706214 |
| 39 | -2.8951566 | -3.3751798 |
| 40 | -2.8832140 | -3.3797398 |
| 41 | -2.8712646 | -3.3843006 |
| 42 | -2.8593084 | -3.3888657 |
| 43 | -2.8473385 | -3.3934343 |
| 44 | -2.8353617 | -3.3980054 |

**********
* PHOTO FRAME NUMBER 1 OF 1 *
**********

## FRAME 120

| | YEAR | MONTH | DAY | HOUR | MINUTE | SECOND |
|---|---|---|---|---|---|---|
| GMT | 67 | 2 | 19 | 18 | 18 | 34.599 |

| | | | | | |
|---|---|---|---|---|---|
| LONGITUDE OF NADIR POINT | = | -15.9888535 | DEG | LATITUDE OF NADIR POINT | = 0.0492832 DEG |
| LONG OF CAMERA AXIS INTERSECT | = | -19.5376773 | DEG | LATI OF CAMERA AXIS INTERSECT | = -0.7228432 DEG |
| SPACECRAFT RADIUS | = | 1782.8981238 | KM | SPACECRAFT ALTITUDE | = 44.7681274 KM |
| MEAN ALTITUDE RATE | = | -0.0214378 | KM/SEC | TIME FROM PERIAPSIS | = -41.2040005 SEC |
| HORIZONTAL VELOCITY | = | 1.9174247 | KM/SEC | TRUE ANOMALY | = 357.4601364 DEG |
| SCALE FACTOR (HIGH) | = | 0.0050745 | M/KM | TILT DISTANCE (HIGH) | = 1391.6565704 MM |
| SCALE FACTOR (LOW) | = | 0.0006655 | M/KM | TILT DISTANCE (LOW) | = 182.5123367 MM |
| IMAGE MOTION COMPENSATION (V/H) | = | 0.0103231 | RAD/SEC | SWING ANGLE | = 27.4627938 DEG |
| EMISSION ANGLE | = | 69.9626551 | DEG | INCIDENCE ANGLE | = 77.4867878 DEG |
| PHASE ANGLE | = | 15.0491149 | DEG | NORTH DEVIATION ANGLE | = 301.7210045 DEG |
| TILT ANGLE | = | 66.3308849 | DEG | RESOLUTION CONSTANT | = 2.6085432 MIR |
| TILT AZIMUTH | = | 257.7186012 | DEG | SUN AZIMUTH AT PRINCIPAL GND PT | = 91.3315315 DEG |
| SUN ANGLE AT NADIR | = | 73.9582958 | DEG | SUN ARC AT NADIR | = 2243.5540161 KM |
| LONGITUDE DISTANCE TO TARGET | = | 4.0111465 | DEG | LATITUDE DISTANCE TO TARGET | = 0.5492832 DEG |
| LONGITUDE ARC LENGTH TO TARGET | = | 121.6797075 | KM | LATITUDE ARC LENGTH TO TARGET | = 16.6627226 KM |
| FORWARD OVERLAP RATIO | = | 0. | PCT | SIDE OVERLAP RATIO | = 0. PCT |
| TIME BETWEEN PHOTOS | = | 0. | SEC | ALPHA | = 52.0849519 DEG. |

| DIRECTION COSINES TO TARGET | X | Y | Z | MAGNITUDE (KM) |
|---|---|---|---|---|
| CAMERA AXIS | -0.61041526 | -0.78193795 | -0.12635765 | 132.17243004 |
| C1 | -0.63226842 | -0.74976489 | -0.19516467 | 120.20936584 |
| C2 | -0.76103546 | -0.63432836 | -0.13584021 | 82.82026672 |
| C3 | -0.50931671 | -0.79827800 | -0.32147893 | 209.16617966 |
| C4 | -0.48236723 | -0.84013983 | -0.24796556 | 295.35188675 |
| | -0.73408596 | -0.67619018 | -0.06232686 | 89.41184998 |

| STATE VECTOR (1950.0) | X | Y | Z | X DOT | Y DOT | Z DOT |
|---|---|---|---|---|---|---|
| | -428.4146614 | -1598.9352417 | -662.1556244 | 1.7536772 | -0.1292601 | -0.7647780 |

LONG -17.1202 DEG
LATI -0.4010 DEG

(1) * 58.34080 KM * (2)

LONG -24.7472 DEG
LATI -6.7293 DEG

LOW RESOLUTION

53.94467 KM 342.19254 KM

(4) * 95.50485 KM * (3)

LONG -18.3925 DEG
LATI 0.8415 DEG

HORIZON INTERSECT NOT CORRECT

(LONG -18.3016 DEG
LATI -1.4318 DEG)

LONG -18.2266 DEG
LATI -0.3203 DEG

(1) * 134.62374 KM * (2)

LONG -22.2645 DEG
LATI -2.1666 DEG

HIGH RESOLUTION

10.09072 KM 88.96608 KM

(4) * 213.78602 KM * (3)

LONG -18.5016 DEG
LATI -0.1332 DEG

LONG -25.1932 DEG
LATI -2.3644 DEG

LOW RESOLUTION 120

| INDEX | LONGITUDE | LATITUDE |
|---|---|---|
| 1 | -17.1201932 | -0.4009517 |
| 2 | -17.2500420 | -0.5151013 |
| 3 | -17.3963652 | -0.6434841 |
| 4 | -17.5645311 | -0.7907045 |
| 5 | -17.7623198 | -0.9634144 |
| 6 | -18.0015950 | -1.1717001 |
| 7 | -18.3015530 | -1.4317912 |
| 8 | -18.6959383 | -1.7720217 |
| 9 | -19.2517450 | -2.2481183 |
| 10 | -20.1321838 | -2.9940099 |
| 11 | -21.9723392 | -4.5192150 |
| 12 | 0. | 0. |
| 13 | 0. | 0. |
| 14 | 0. | 0. |
| 15 | 0. | 0. |
| 16 | 0. | 0. |
| 17 | 0. | 0. |
| 18 | 0. | 0. |
| 19 | 0. | 0. |
| 20 | 0. | 0. |
| 21 | 0. | 0. |
| 22 | 0. | 0. |
| 23 | 0. | 0. |
| 24 | 0. | 0. |
| 25 | 0. | 0. |
| 26 | 0. | 0. |
| 27 | 0. | 0. |
| 28 | 0. | 0. |
| 29 | -22.6390305 | 0.7561608 |
| 30 | -20.9173343 | 0.7667152 |
| 31 | -19.9389782 | 0.7873347 |
| 32 | -19.2743428 | 0.8073873 |
| 33 | -18.7806327 | 0.8254488 |
| 34 | -18.3925176 | 0.8415416 |
| 35 | -18.2085361 | 0.6656190 |
| 36 | -18.0490990 | 0.5121498 |
| 37 | -17.9083970 | 0.3759319 |
| 38 | -17.7822809 | 0.2532054 |
| 39 | -17.6676807 | 0.1411663 |
| 40 | -17.5622635 | 0.0376668 |
| 41 | -17.4642060 | -0.0589821 |
| 42 | -17.3720667 | -0.1501335 |
| 43 | -17.2846506 | -0.2369060 |
| 44 | -17.2009773 | -0.3202420 |

CORNER 2, 3 OF LOW RESOLUTION FRAME 1 IS OFF THE MOON

HIGH RESOLUTION 120

| INDEX | LONGITUDE | LATITUDE |
|---|---|---|
| 1 | -18.2265849 | -0.3203154 |
| 2 | -18.3717468 | -0.3898151 |
| 3 | -18.5329461 | -0.4667230 |
| 4 | -18.7136388 | -0.5525888 |
| 5 | -18.9183805 | -0.6494494 |
| 6 | -19.1533594 | -0.7600464 |
| 7 | -19.4272432 | -0.8881867 |
| 8 | -19.7526779 | -1.0393635 |
| 9 | -20.1490884 | -1.2219276 |
| 10 | -20.6486039 | -1.4494933 |
| 11 | -21.3103673 | -1.7466979 |
| 12 | -22.2644868 | -2.1665992 |
| 13 | -22.4293811 | -2.1699587 |
| 14 | -22.6051629 | -2.1745572 |
| 15 | -22.7933893 | -2.1806471 |
| 16 | -22.9960067 | -2.1885497 |
| 17 | -23.2154641 | -2.1986874 |
| 18 | -23.4549580 | -2.2116229 |
| 19 | -23.7187638 | -2.2281374 |
| 20 | -24.0128307 | -2.2493494 |
| 21 | -24.3458536 | -2.2769494 |
| 22 | -24.7314417 | -2.3136625 |
| 23 | -25.1931694 | -2.3643638 |
| 24 | -22.9192150 | -1.6605240 |
| 25 | -21.7794135 | -1.2866377 |
| 26 | -21.0187354 | -1.0292881 |
| 27 | -20.4555213 | -0.8347157 |
| 28 | -20.0137961 | -0.6797165 |
| 29 | -19.6540637 | -0.5519314 |
| 30 | -19.3530777 | -0.4439427 |
| 31 | -19.0959997 | -0.3509334 |
| 32 | -18.8727958 | -0.2696046 |
| 33 | -18.6763835 | -0.1975931 |
| 34 | -18.5015786 | -0.1331545 |
| 35 | -18.4746027 | -0.1513971 |
| 36 | -18.4480639 | -0.1693699 |
| 37 | -18.4219522 | -0.1870806 |
| 38 | -18.3962400 | -0.2045385 |
| 39 | -18.3709238 | -0.2217515 |
| 40 | -18.3459868 | -0.2387279 |
| 41 | -18.3214185 | -0.2554747 |
| 42 | -18.2972057 | -0.2720303 |
| 43 | -18.2733374 | -0.2883108 |
| 44 | -18.2498007 | -0.3044130 |

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* PHOTO FRAME NUMBER 1 OF 1 *
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## FRAME 121

| | YEAR | MONTH | DAY | HOUR | MINUTE | SECOND |
|---|---|---|---|---|---|---|
| GMT | 67 | 2 | 19 | 19 | 22 | 0.299 |

| | | | | | |
|---|---|---|---|---|---|
| LONGITUDE OF NADIR POINT | = | 127.0693188 | DEG | LATITUDE OF NADIR POINT | = -12.9140851 DEG |
| LONG OF CAMERA AXIS INTERSECT | = | 126.6774740 | DEG | LATI OF CAMERA AXIS INTERSECT | = -24.0235524 DEG |
| SPACECRAFT RADIUS | = | 3198.8501282 | KM | SPACECRAFT ALTITUDE | = 1460.7601318 KM |
| MEAN ALTITUDE RATE | = | 0.3159770 | KM/SEC | TIME FROM PERIAPSIS | = 3764.5140991 SEC |
| HORIZONTAL VELOCITY | = | 1.0686575 | KM/SEC | TRUE ANOMALY | = 139.1552086 DEG |
| SCALE FACTOR (HIGH) | = | 0.0003986 | M/KM | TILT DISTANCE (HIGH) | = 136.8738689 MM |
| SCALE FACTOR (LOW) | = | 0.0000523 | M/KM | TILT DISTANCE (LOW) | = 17.9506712 MM |
| IMAGE MOTION COMPENSATION (V/H) | = | -0.0006702 | RAD/SEC | SWING ANGLE | = 183.1929111 DEG |
| EMISSION ANGLE | = | 23.7622519 | DEG | INCIDENCE ANGLE | = 70.4978685 DEG |
| PHASE ANGLE | = | 70.0478153 | DEG | NORTH DEVIATION ANGLE | = 181.0280552 DEG |
| TILT ANGLE | = | 12.6467524 | DEG | RESOLUTION CONSTANT | = 33.2117419 MTR |
| TILT AZIMUTH | = | 181.8567467 | DEG | SUN AZIMUTH AT PRINCIPAL GND PT | = 277.3740273 DEG |
| SUN ANGLE AT NADIR | = | 69.8391104 | DEG | SUN ARC AT NADIR | = 2118.5968933 KM |
| LONGITUDE DISTANCE TO TARGET | = | 0.3393192 | DEG | LATITUDE DISTANCE TO TARGET | = 11.2259150 DEG |
| LONGITUDE ARC LENGTH TO TARGET | = | 10.2933823 | KM | LATITUDE ARC LENGTH TO TARGET | = 340.5425453 KM |
| FORWARD OVERLAP RATIO | = | 0. | PCT | SIDE OVERLAP RATIO | = 0. PCT |
| TIME BETWEEN PHOTOS | = | 0. | SEC | ALPHA | = -1.4338919 DEG. |

| DIRECTION COSINES TO TARGET | X | Y | Z | MAGNITUDE (KM) |
|---|---|---|---|---|
| CAMERA AXIS | 0.60765988 | -0.79419289 | 0.00266833 | 1531.90934753 |
| C1 | 0.60841897 | -0.79360161 | 0.00477797 | 1530.49502563 |
| C2 | 0.63060467 | -0.75660284 | -0.17288695 | 1737.75712585 |
| C3 | 0.63634329 | -0.75007786 | 0.18014004 | 1467.56082153 |
| C4 | 0.56589631 | -0.80407351 | 0.18228314 | 1464.61968994 |
| | 0.56015770 | -0.81059849 | -0.17074376 | 1732.79142761 |

| STATE VECTOR (1950.0) | X | Y | Z | X DOT | Y DOT | Z DOT |
|---|---|---|---|---|---|---|
| | 2410.0022888 | 2099.1930847 | 133.8641758 | -0.3680294 | 0.8659423 | 0.5971338 |

LONG 81.1618 DEG
LATI -49.8027 DEG

LONG 109.2317 DEG
LATI -3.9970 DEG

(1) * 1329.72479 KM * (2)

LOW RESOLUTION

2651.60712 KM 1004.34930 KM

(4) * 1640.73395 KM * (3)

LONG 177.5840 DEG
LATI -51.6886 DEG

LONG 142.8907 DEG
LATI -3.5440 DEG

LONG 123.7433 DEG
LATI -35.7446 DEG

LONG 124.2827 DEG
LATI -15.0236 DEG

(1) * 625.32639 KM * (2)

HIGH RESOLUTION

154.14738 KM 130.20101 KM

(4) * 623.21638 KM * (3)

LONG 129.9957 DEG
LATI -35.5591 DEG

LONG 128.7259 DEG
LATI -14.9346 DEG

LOW RESOLUTION 121

| INDEX | LONGITUDE | LATITUDE |
|---|---|---|
| 1 | 0. | 0. |
| 2 | 0. | 0. |
| 3 | 85.8931131 | -47.6239562 |
| 4 | 98.2883539 | -37.6194177 |
| 5 | 102.4400787 | -31.5180807 |
| 6 | 104.7830353 | -26.6631677 |
| 7 | 106.3144150 | -22.4500945 |
| 8 | 107.3845921 | -18.6006744 |
| 9 | 108.1518536 | -14.9475844 |
| 10 | 108.6952105 | -11.3684646 |
| 11 | 109.0521812 | -7.7559401 |
| 12 | 109.2316656 | -3.9969908 |
| 13 | 112.8777170 | -4.3274806 |
| 14 | 116.1638012 | -4.5466921 |
| 15 | 119.2117243 | -4.6830628 |
| 16 | 122.1053543 | -4.7527486 |
| 17 | 124.9085932 | -4.7646545 |
| 18 | 127.6751347 | -4.7227385 |
| 19 | 130.4548435 | -4.6269741 |
| 20 | 133.2990112 | -4.4734272 |
| 21 | 136.2660275 | -4.2535344 |
| 22 | 139.4292965 | -3.9522368 |
| 23 | 142.8907280 | -3.5439836 |
| 24 | 143.2249012 | -7.2251806 |
| 25 | 143.7080669 | -10.7605863 |
| 26 | 144.3535595 | -14.2571967 |
| 27 | 145.1983299 | -17.8158216 |
| 28 | 146.3141041 | -21.5493319 |
| 29 | 147.8377247 | -25.6079445 |
| 30 | 150.0561943 | -30.2313969 |
| 31 | 153.7134552 | -35.9027963 |
| 32 | 162.1129036 | -44.1893406 |
| 33 | 0. | 0. |
| 34 | 0. | 0. |
| 35 | 0. | 0. |
| 36 | 0. | 0. |
| 37 | 0. | 0. |
| 38 | 0. | 0. |
| 39 | 0. | 0. |
| 40 | 0. | 0. |
| 41 | 0. | 0. |
| 42 | 0. | 0. |
| 43 | 0. | 0. |
| 44 | 0. | 0. |

CORNER 1,4 OF LOW RESOLUTION FRAME 1 IS OFF THE MOON

HIGH RESOLUTION 121

| INDEX | LONGITUDE | LATITUDE |
|---|---|---|
| 1 | 123.7432680 | -35.7446065 |
| 2 | 123.8706779 | -33.2335653 |
| 3 | 123.9687967 | -30.9481442 |
| 4 | 124.0457754 | -28.8352585 |
| 5 | 124.1068115 | -26.8572059 |
| 6 | 124.1554012 | -24.9859183 |
| 7 | 124.1939697 | -23.1996694 |
| 8 | 124.2242374 | -21.4810538 |
| 9 | 124.2474585 | -19.8156855 |
| 10 | 124.2645378 | -18.1913154 |
| 11 | 124.2761354 | -16.5972030 |
| 12 | 124.2827129 | -15.0236489 |
| 13 | 124.6888628 | -15.0180361 |
| 14 | 125.0941477 | -15.0119290 |
| 15 | 125.4987078 | -15.0053252 |
| 16 | 125.9026861 | -14.9982303 |
| 17 | 126.3062229 | -14.9906393 |
| 18 | 126.7094545 | -14.9825532 |
| 19 | 127.1125212 | -14.9739711 |
| 20 | 127.5155602 | -14.9648895 |
| 21 | 127.9187107 | -14.9553059 |
| 22 | 128.3221073 | -14.9452169 |
| 23 | 128.7258949 | -14.9346173 |
| 24 | 128.7934074 | -16.5035408 |
| 25 | 128.8656330 | -18.0926969 |
| 26 | 128.9434052 | -19.7117009 |
| 27 | 129.0277805 | -21.3711946 |
| 28 | 129.1200867 | -23.0832942 |
| 29 | 129.2220459 | -24.8622143 |
| 30 | 129.3359241 | -26.7251270 |
| 31 | 129.4648037 | -28.6934338 |
| 32 | 129.6129951 | -30.7947295 |
| 33 | 129.7867680 | -33.0659885 |
| 34 | 129.9957237 | -35.5591192 |
| 35 | 129.4278336 | -35.5703483 |
| 36 | 128.8607864 | -35.5826859 |
| 37 | 128.2942638 | -35.5961337 |
| 38 | 127.7279539 | -35.6106944 |
| 39 | 127.1615429 | -35.6263752 |
| 40 | 126.5947199 | -35.6431851 |
| 41 | 126.0271664 | -35.6611314 |
| 42 | 125.4585676 | -35.6802316 |
| 43 | 124.8886032 | -35.7004972 |
| 44 | 124.3169470 | -35.7219491 |

**********
* PHOTO FRAME NUMBER 1 OF 1 *
**********

FRAME 122

| | YEAR | MONTH | DAY | HOUR | MINUTE | SECOND |
|---|---|---|---|---|---|---|
| GMT | 67 | 2 | 19 | 21 | 45 | 56.999 |

| | | | | | | |
|---|---|---|---|---|---|---|
| LONGITUDE OF NADIR POINT | = | -21.8345680 | DEG | LATITUDE OF NADIR POINT | = | 1.4275607 DEG |
| LONG OF CAMERA AXIS INTERSECT | = | -22.0294120 | DEG | LATI OF CAMERA AXIS INTERSECT | = | 0.9707090 DEG |
| SPACECRAFT RADIUS | = | 1785.7505188 | KM | SPACECRAFT ALTITUDE | = | 47.6605225 KM |
| MEAN ALTITUDE RATE | = | -0.0572680 | KM/SEC | TIME FROM PERIAPSIS | = | -110.4714756 SEC |
| HORIZONTAL VELOCITY | = | 1.9143105 | KM/SEC | TRUE ANOMALY | = | 353.1986771 DEG |
| SCALE FACTOR (HIGH) | = | 0.0121885 | M/KM | TILT DISTANCE (HIGH) | = | 192.5630150 MM |
| SCALE FACTOR (LOW) | = | 0.0015985 | M/KM | TILT DISTANCE (LOW) | = | 25.2541659 MM |
| IMAGE MOTION COMPENSATION (V/H) | = | 0.0382614 | RAD/SEC | SWING ANGLE | = | 2.4209764 DEG |
| EMISSION ANGLE | = | 18.0163665 | DEG | INCIDENCE ANGLE | = | 78.2728577 DEG |
| PHASE ANGLE | = | 72.3137426 | DEG | NORTH DEVIATION ANGLE | = | 338.2715340 DEG |
| TILT ANGLE | = | 17.5197122 | DEG | RESOLUTION CONSTANT | = | 1.0860274 MTR |
| TILT AZIMUTH | = | 203.0961838 | DEG | SUN AZIMUTH AT PRINCIPAL GND PT | = | 91.6875153 DEG |
| SUN ANGLE AT NADIR | = | 78.0919943 | DEG | SUN ARC AT NADIR | = | 2368.9513550 KM |
| LONGITUDE DISTANCE TO TARGET | = | 0.2484319 | DEG | LATITUDE DISTANCE TO TARGET | = | 0.2605607 DEG |
| LONGITUDE ARC LENGTH TO TARGET | = | 7.5362800 | KM | LATITUDE ARC LENGTH TO TARGET | = | 7.9042124 KM |
| FORWARD OVERLAP RATIO | = | 0. | PCT | SIDE OVERLAP RATIO | = | 0. PCT |
| TIME BETWEEN PHOTOS | = | 0. | SEC | ALPHA | = | 5.4008266 DEG. |

| DIRECTION COSINES TO TARGET | X | Y | Z | MAGNITUDE (KM) |
|---|---|---|---|---|
| CAMERA AXIS | -0.95810776 | 0.21798765 | -0.18577110 | 48.92892265 |
| C1 | -0.92244473 | 0.24238270 | -0.30057669 | 50.04734802 |
| C2 | -0.92268668 | 0.35301299 | -0.15501978 | 48.08818054 |
| C3 | -0.86081847 | 0.20082350 | -0.46761253 | 54.05110168 |
| C4 | -0.89136922 | 0.12365054 | -0.43608654 | 54.12258911 |
| | -0.95323741 | 0.27584002 | -0.12349379 | 48.14453125 |

| | X | Y | Z | X DOT | Y DOT | Z DOT |
|---|---|---|---|---|---|---|
| STATE VECTOR (1950.0) | -548.0113602 | -1585.4007568 | -612.4483185 | 1.7264314 | -0.2238950 | -0.7982296 |

LONG -21.3404 DEG
LATI 1.3753 DEG

LONG -21.7072 DEG
LATI -0.0215 DEG

(1) * 43.80785 KM * (2)

LOW RESOLUTION

30.48676 KM 39.87103 KM

(4) * 44.29073 KM * (3)

LONG -22.2800 DEG
LATI 1.7330 DEG

LONG -22.9412 DEG
LATI 0.4311 DEG

LONG -21.8591 DEG
LATI 1.2209 DEG

LONG -22.0729 DEG
LATI 0.6334 DEG

(1) * 18.96545 KM * (2)

HIGH RESOLUTION

4.27242 KM 4.80267 KM

(4) * 18.99152 KM * (3)

LONG -21.9909 DEG
LATI 1.2707 DEG

LONG -22.2213 DEG
LATI 0.6885 DEG

LOW RESOLUTION 122

| INDEX | LONGITUDE | LATITUDE |
|---|---|---|
| 1 | -21.3404100 | 1.3752773 |
| 2 | -21.3689773 | 1.2681680 |
| 3 | -21.3974319 | 1.1612013 |
| 4 | -21.4260674 | 1.0532724 |
| 5 | -21.4551878 | 0.9432346 |
| 6 | -21.4851143 | 0.8298492 |
| 7 | -21.5162020 | 0.7117270 |
| 8 | -21.5488675 | 0.5872469 |
| 9 | -21.5836058 | 0.4544646 |
| 10 | -21.6210215 | 0.3109648 |
| 11 | -21.6618898 | 0.1536588 |
| 12 | -21.7072253 | -0.0215236 |
| 13 | -21.8245440 | 0.0227206 |
| 14 | -21.9380755 | 0.0652898 |
| 15 | -22.0488338 | 0.1065928 |
| 16 | -22.1577549 | 0.1469899 |
| 17 | -22.2657094 | 0.1868108 |
| 18 | -22.3735273 | 0.2263695 |
| 19 | -22.4820487 | 0.2659701 |
| 20 | -22.5921240 | 0.3059173 |
| 21 | -22.7046616 | 0.3465279 |
| 22 | -22.8206487 | 0.3881426 |
| 23 | -22.9411979 | 0.4311326 |
| 24 | -22.8575213 | 0.5943528 |
| 25 | -22.7825704 | 0.7409235 |
| 26 | -22.7143502 | 0.8746381 |
| 27 | -22.6513555 | 0.9983722 |
| 28 | -22.5924110 | 1.1143795 |
| 29 | -22.5365741 | 1.2244710 |
| 30 | -22.4830666 | 1.3301554 |
| 31 | -22.4312184 | 1.4327286 |
| 32 | -22.3804429 | 1.5333467 |
| 33 | -22.3301966 | 1.6330786 |
| 34 | -22.2799571 | 1.7329556 |
| 35 | -22.1888561 | 1.6982300 |
| 36 | -22.1010063 | 1.6647519 |
| 37 | -22.0156050 | 1.6322163 |
| 38 | -21.9319317 | 1.6003466 |
| 39 | -21.8493207 | 1.5688893 |
| 40 | -21.7671397 | 1.5376036 |
| 41 | -21.6847711 | 1.5062539 |
| 42 | -21.6015897 | 1.4746037 |
| 43 | -21.5169466 | 1.4424044 |
| 44 | -21.4301381 | 1.4093924 |

HIGH RESOLUTION 122

| INDEX | LONGITUDE | LATITUDE |
|---|---|---|
| 1 | -21.8591151 | 1.2209074 |
| 2 | -21.8768530 | 1.1721842 |
| 3 | -21.8947856 | 1.1229275 |
| 4 | -21.9129505 | 1.0730201 |
| 5 | -21.9313955 | 1.0223367 |
| 6 | -21.9501717 | 0.9707457 |
| 7 | -21.9693236 | 0.9181055 |
| 8 | -21.9889090 | 0.8642657 |
| 9 | -22.0089934 | 0.8090624 |
| 10 | -22.0296340 | 0.7523154 |
| 11 | -22.0509033 | 0.6938285 |
| 12 | -22.0728829 | 0.6333839 |
| 13 | -22.0863690 | 0.6384058 |
| 14 | -22.0998518 | 0.6434252 |
| 15 | -22.1133277 | 0.6484394 |
| 16 | -22.1268072 | 0.6534519 |
| 17 | -22.1402867 | 0.6584627 |
| 18 | -22.1537695 | 0.6634726 |
| 19 | -22.1672590 | 0.6684834 |
| 20 | -22.1807520 | 0.6734933 |
| 21 | -22.1942554 | 0.6785041 |
| 22 | -22.2077689 | 0.6835175 |
| 23 | -22.2212927 | 0.6885326 |
| 24 | -22.1975782 | 0.7484214 |
| 25 | -22.1746323 | 0.8063696 |
| 26 | -22.1523693 | 0.8625965 |
| 27 | -22.1307175 | 0.9172927 |
| 28 | -22.1096020 | 0.9706382 |
| 29 | -22.0889611 | 1.0227943 |
| 30 | -22.0687335 | 1.0739132 |
| 31 | -22.0488646 | 1.1241321 |
| 32 | -22.0292995 | 1.1735827 |
| 33 | -22.0099938 | 1.2223878 |
| 34 | -21.9909000 | 1.2706645 |
| 35 | -21.9788926 | 1.2661343 |
| 36 | -21.9668953 | 1.2616059 |
| 37 | -21.9549084 | 1.2570818 |
| 38 | -21.9429283 | 1.2525593 |
| 39 | -21.9309516 | 1.2480378 |
| 40 | -21.9189782 | 1.2435170 |
| 41 | -21.9070084 | 1.2389971 |
| 42 | -21.8950384 | 1.2344773 |
| 43 | -21.8830686 | 1.2299557 |
| 44 | -21.8710918 | 1.2254324 |

**********
* PHOTO FRAME NUMBER 1 OF 1 *
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## FRAME 123

| | YEAR | MONTH | DAY | HOUR | MINUTE | SECOND |
|---|---|---|---|---|---|---|
| GMT | 67 | 2 | 20 | 1 | 13 | 17.500 |

| | | | | | | |
|---|---|---|---|---|---|---|
| LONGITUDE OF NADIR POINT | = | -27.7102890 | DEG | LATITUDE OF NADIR POINT | = | 2.9389168 DEG |
| LONG OF CAMERA AXIS INTERSECT | = | -27.7095852 | DEG | LATI OF CAMERA AXIS INTERSECT | = | 7.4147414 DEG |
| SPACECRAFT RADIUS | = | 1791.3482666 | KM | SPACECRAFT ALTITUDE | = | 53.2582703 KM |
| MEAN ALTITUDE RATE | = | -0.0931705 | KM/SEC | TIME FROM PERIAPSIS | = | -180.9198704 SEC |
| HORIZONTAL VELOCITY | = | 1.9084002 | KM/SEC | TRUE ANOMALY | = | 348.8867645 DEG |
| SCALE FACTOR (HIGH) | = | 0.0041289 | M/KM | TILT DISTANCE (HIGH) | = | 1412.9219971 MM |
| SCALE FACTOR (LOW) | = | 0.0005415 | M/KM | TILT DISTANCE (LOW) | = | 185.3012466 MM |
| IMAGE MOTION COMPENSATION (V/H) | = | 0.0123135 | RAD/SEC | SWING ANGLE | = | 168.7872562 DEG |
| EMISSION ANGLE | = | 71.1245451 | DEG | INCIDENCE ANGLE | = | 82.4301434 DEG |
| PHASE ANGLE | = | 85.2454176 | DEG | NORTH DEVIATION ANGLE | = | 348.7597008 DEG |
| TILT ANGLE | = | 66.6487207 | DEG | RESOLUTION CONSTANT | = | 3.2059288 MTR |
| TILT AZIMUTH | = | 0.3088491 | DEG | SUN AZIMUTH AT PRINCIPAL GND PT | = | 92.4695396 DEG |
| SUN ANGLE AT NADIR | = | 82.2613668 | DEG | SUN ARC AT NADIR | = | 2495.4309387 KM |
| LONGITUDE DISTANCE TO TARGET | = | 0.0397110 | DEG | LATITUDE DISTANCE TO TARGET | = | -4.7280832 DEG |
| LONGITUDE ARC LENGTH TO TARGET | = | 1.2046487 | KM | LATITUDE ARC LENGTH TO TARGET | = | -143.4282627 KM |
| FORWARD OVERLAP RATIO | = | 0. | PCT | SIDE OVERLAP RATIO | = | 0. PCT |
| TIME BETWEEN PHOTOS | = | 0. | SEC | ALPHA | = | -18.0266650 DEG. |

| | X | Y | Z | MAGNITUDE (KM) |
|---|---|---|---|---|
| DIRECTION COSINES TO TARGET | | | | |
| CAMERA AXIS | -0.38304788 | 0.19249085 | 0.90344983 | 155.00939941 |
| C1 | -0.39205369 | 0.20608270 | 0.89656223 | 147.73865509 |
| C2 | -0.22435588 | 0.20469464 | 0.95276678 | 375.09453201 |
| C3 | -0.52554706 | 0.28658865 | 0.80104133 | 99.18158722 |
| C4 | -0.55234107 | 0.20228976 | 0.80870154 | 102.42594910 |
| | -0.26493707 | 0.12417980 | 0.95623623 | 398.61512756 |

| | X | Y | Z | X DOT | Y DOT | Z DOT |
|---|---|---|---|---|---|---|
| STATE VECTOR (1950.0) | -666.8128052 | -1566.9162292 | -555.9342346 | 1.6897944 | -0.3168330 | -0.8335975 |

LONG -23.6655 DEG
LATI 13.1194 DEG

LONG -27.1508 DEG
LATI 4.5243 DEG

(1) * 258.50999 KM * (2)

LOW RESOLUTION

158.99024 KM 51.07804 KM

(4) * 88.29023 KM * (3)

LONG -30.2828 DEG
LATI 10.3490 DEG

LONG -28.7829 DEG
LATI 4.9598 DEG

LONG -26.7263 DEG
LATI 14.9786 DEG

LONG -27.6796 DEG
LATI 5.6558 DEG

(1) * 282.73833 KM * (2)

HIGH RESOLUTION

103.82753 KM 9.51874 KM

(4) * 102.42595 KM * (3)

LONG -27.8913 DEG
LATI 15.7920 DEG

LONG -27.9741 DEG
LATI 5.7679 DEG

LOW RESOLUTION 123

| INDEX | LONGITUDE | LATITUDE |
|---|---|---|
| 1 | 0. | 0. |
| 2 | 0. | 0. |
| 3 | 0. | 0. |
| 4 | -24.7691069 | 10.4294434 |
| 5 | -25.6873951 | 8.1644101 |
| 6 | -26.1463974 | 7.0256520 |
| 7 | -26.4418817 | 6.2908756 |
| 8 | -26.6542630 | 5.7620977 |
| 9 | -26.8173542 | 5.3557314 |
| 10 | -26.9484630 | 5.0289060 |
| 11 | -27.0575411 | 4.7569125 |
| 12 | -27.1507938 | 4.5243215 |
| 13 | -27.2850616 | 4.5583862 |
| 14 | -27.4185987 | 4.5925781 |
| 15 | -27.5524499 | 4.6271636 |
| 16 | -27.6876774 | 4.6624228 |
| 17 | -27.8253808 | 4.6986552 |
| 18 | -27.9667554 | 4.7361999 |
| 19 | -28.1131163 | 4.7754377 |
| 20 | -28.2659621 | 4.8168166 |
| 21 | -28.4270589 | 4.8608722 |
| 22 | -28.5985172 | 4.9082618 |
| 23 | -28.7829323 | 4.9598118 |
| 24 | -28.6706353 | 5.2979215 |
| 25 | -28.9795973 | 5.7137007 |
| 26 | -29.1211975 | 6.2470582 |
| 27 | -29.3174219 | 6.9735035 |
| 28 | -29.6192071 | 8.0631347 |
| 29 | -30.1979835 | 10.0647838 |
| 30 | 0. | 0. |
| 31 | 0. | 0. |
| 32 | 0. | 0. |
| 33 | 0. | 0. |
| 34 | 0. | 0. |
| 35 | 0. | 0. |
| 36 | 0. | 0. |
| 37 | 0. | 0. |
| 38 | 0. | 0. |
| 39 | 0. | 0. |
| 40 | 0. | 0. |
| 41 | 0. | 0. |
| 42 | 0. | 0. |
| 43 | 0. | 0. |
| 44 | 0. | 0. |

CORNER 1,4 OF LOW RESOLUTION FRAME 1 IS OFF THE MOON

HIGH RESOLUTION 123

| INDEX | LONGITUDE | LATITUDE |
|---|---|---|
| 1 | 0. | 0. |
| 2 | -27.0542934 | 11.5359153 |
| 3 | -27.2244198 | 9.8555632 |
| 4 | -27.3321352 | 8.8244463 |
| 5 | -27.4105322 | 8.0891184 |
| 6 | -27.4715769 | 7.5250370 |
| 7 | -27.5211265 | 7.0724712 |
| 8 | -27.5625279 | 6.6979301 |
| 9 | -27.5978673 | 6.3807250 |
| 10 | -27.6285450 | 6.1071888 |
| 11 | -27.6555517 | 5.8678342 |
| 12 | -27.6795938 | 5.6558303 |
| 13 | -27.7056203 | 5.6656265 |
| 14 | -27.7317798 | 5.6754944 |
| 15 | -27.7580762 | 5.6854357 |
| 16 | -27.7845192 | 5.6954547 |
| 17 | -27.8111126 | 5.7055498 |
| 18 | -27.8378596 | 5.7157276 |
| 19 | -27.8647704 | 5.7259891 |
| 20 | -27.8918455 | 5.7363360 |
| 21 | -27.9190943 | 5.7467716 |
| 22 | -27.9465244 | 5.7572995 |
| 23 | -27.9741390 | 5.7679222 |
| 24 | -27.9682651 | 5.9952207 |
| 25 | -27.9618173 | 6.2533070 |
| 26 | -27.9546900 | 6.5502768 |
| 27 | -27.9467499 | 6.8975646 |
| 28 | -27.9378364 | 7.3120375 |
| 29 | -27.9277380 | 7.8200456 |
| 30 | -27.9162190 | 8.4661824 |
| 31 | -27.9030604 | 9.3357133 |
| 32 | -27.8884850 | 10.6304815 |
| 33 | -27.8775361 | 13.1650357 |
| 34 | 0. | 0. |
| 35 | 0. | 0. |
| 36 | 0. | 0. |
| 37 | 0. | 0. |
| 38 | 0. | 0. |
| 39 | 0. | 0. |
| 40 | 0. | 0. |
| 41 | 0. | 0. |
| 42 | 0. | 0. |
| 43 | 0. | 0. |
| 44 | 0. | 0. |

CORNER 1,4 OF HIGH RESOLUTION FRAME 1 IS OFF THE MOON

**********
* PHOTO FRAME NUMBER 1 OF 8 *
**********

FRAME 124

| GMT | YEAR | MONTH | DAY | HOUR | MINUTE | SECOND |
|---|---|---|---|---|---|---|
| | 67 | 2 | 20 | 4 | 44 | 32.300 |

| | | | | | |
|---|---|---|---|---|---|
| LONGITUDE OF NADIR POINT | = | -20.1385460 | DEG | LATITUDE OF NADIR POINT | = -0.5553465 DEG |
| LONG OF CAMERA AXIS INTERSECT | = | -20.1504135 | DEG | LATI OF CAMERA AXIS INTERSECT | = -0.5506362 DEG |
| SPACECRAFT RADIUS | = | 1783.1813354 | KM | SPACECRAFT ALTITUDE | = 45.0913391 KM |
| MEAN ALTITUDE RATE | = | -0.0089686 | KM/SEC | TIME FROM PERIAPSIS | = -17.2626257 SEC |
| HORIZONTAL VELOCITY | = | 1.9171866 | KM/SEC | TRUE ANOMALY | = 358.9365158 DEG |
| SCALE FACTOR (HIGH) | = | 0.0135276 | M/KM | TILT DISTANCE (HIGH) | = 5.2475343 MM |
| SCALE FACTOR (LOW) | = | 0.0017741 | M/KM | TILT DISTANCE (LOW) | = 0.6882012 MM |
| IMAGE MOTION COMPENSATION (V/H) | = | 0.0425164 | RAD/SEC | SWING ANGLE | = 90.5506964 DEG |
| EMISSION ANGLE | = | 0.5056136 | DEG | INCIDENCE ANGLE | = 72.8228035 DEG |
| PHASE ANGLE | = | 72.3490047 | DEG | NORTH DEVIATION ANGLE | = 338.9188042 DEG |
| TILT ANGLE | = | 0.4928757 | DEG | RESOLUTION CONSTANT | = 0.9785191 MTR |
| TILT AZIMUTH | = | 291.6327744 | DEG | SUN AZIMUTH AT PRINCIPAL GND PT | = 91.3486126 DEG |
| SUN ANGLE AT NADIR | = | 72.8108196 | DEG | SUN ARC AT NADIR | = 2208.7448730 KM |
| LONGITUDE DISTANCE TO TARGET | = | -0.3055460 | DEG | LATITUDE DISTANCE TO TARGET | = 0.2776535 DEG |
| LONGITUDE ARC LENGTH TO TARGET | = | -9.2688594 | KM | LATITUDE ARC LENGTH TO TARGET | = 8.4227294 KM |
| FORWARD OVERLAP RATIO | = | 0. | PCT | SIDE OVERLAP RATIO | = 0. PCT |
| TIME BETWEEN PHOTOS | = | 0. | SEC | ALPHA | = 0.4737138 DEG. |

| DIRECTION COSINES TO TARGET CAMERA AXIS | X | Y | Z | MAGNITUDE (KM) |
|---|---|---|---|---|
| C1 | -0.83816198 | 0.51809712 | -0.17046956 | 46.84154654 |
| C2 | -0.94150589 | 0.33675106 | 0.01286039 | 45.09304810 |
| C3 | -0.88863415 | 0.42926896 | 0.16142335 | 45.86233521 |
| C4 | -0.93539278 | 0.31112161 | -0.16805863 | 45.86094666 |
| | -0.96290690 | 0.23297694 | -0.13613242 | 45.89750671 |
| | -0.91614830 | 0.35112429 | 0.19334956 | 45.89891052 |

| | X | Y | Z | X DOT | Y DOT | Z DOT |
|---|---|---|---|---|---|---|
| STATE VECTOR (1950.0) | -380.3190613 | -1602.6420593 | -683.1043472 | 1.7627490 | -0.0892443 | -0.7486232 |

LONG -19.4561 DEG
LATI -0.1703 DEG

LONG -19.8911 DEG
LATI -1.2986 DEG

(1) • 36.68122 KM • (2)

LOW RESOLUTION

31.10067 KM 31.09850 KM

(4) • 36.90580 KM • (3)

LONG -20.4114 DEG
LATI 0.2020 DEG

LONG -20.8491 DEG
LATI -0.9332 DEG

LONG -19.9918 DEG
LATI -0.3257 DEG

LONG -20.1838 DEG
LATI -0.8238 DEG

(1) • 16.19530 KM • (2)

HIGH RESOLUTION

4.07371 KM 4.07358 KM

(4) • 16.20821 KM • (3)

LONG -20.1170 DEG
LATI -0.2772 DEG

LONG -20.3092 DEG
LATI -0.7757 DEG

LOW RESOLUTION 124

| INDEX | LONGITUDE | LATITUDE |
|---|---|---|
| 1 | -19.4561212 | -0.1702553 |
| 2 | -19.4992266 | -0.2810196 |
| 3 | -19.5402386 | -0.3866228 |
| 4 | -19.5797033 | -0.4884405 |
| 5 | -19.6180959 | -0.5876746 |
| 6 | -19.6558361 | -0.6854086 |
| 7 | -19.6933270 | -0.7826645 |
| 8 | -19.7309477 | -0.8804447 |
| 9 | -19.7690942 | -0.9797676 |
| 10 | -19.8081801 | -1.0817261 |
| 11 | -19.8486590 | -1.1875257 |
| 12 | -19.8910542 | -1.2985530 |
| 13 | -19.9826436 | -1.2632879 |
| 14 | -20.0712173 | -1.2292513 |
| 15 | -20.1575680 | -1.1961334 |
| 16 | -20.2424059 | -1.1636576 |
| 17 | -20.3263967 | -1.1315651 |
| 18 | -20.4101827 | -1.0996118 |
| 19 | -20.4943988 | -1.0675560 |
| 20 | -20.5796840 | -1.0351527 |
| 21 | -20.6667244 | -1.0021475 |
| 22 | -20.7562547 | -0.9682664 |
| 23 | -20.8490939 | -0.9332036 |
| 24 | -20.8056812 | -0.8217870 |
| 25 | -20.7643826 | -0.7155588 |
| 26 | -20.7246513 | -0.6131367 |
| 27 | -20.6860061 | -0.5133092 |
| 28 | -20.6480200 | -0.4149878 |
| 29 | -20.6102970 | -0.3171419 |
| 30 | -20.5724440 | -0.2187667 |
| 31 | -20.5340686 | -0.1188308 |
| 32 | -20.4947541 | -0.0162388 |
| 33 | -20.4540427 | 0.0902276 |
| 34 | -20.4114087 | 0.2019601 |
| 35 | -20.3190680 | 0.1656210 |
| 36 | -20.2299681 | 0.1306316 |
| 37 | -20.1433067 | 0.0966668 |
| 38 | -20.0583460 | 0.0634354 |
| 39 | -19.9744165 | 0.0306701 |
| 40 | -19.8908663 | -0.0018830 |
| 41 | -19.8070769 | -0.0344694 |
| 42 | -19.7223961 | -0.0673320 |
| 43 | -19.6361685 | -0.1007316 |
| 44 | -19.5476732 | -0.1349398 |

HIGH RESOLUTION 124

| INDEX | LONGITUDE | LATITUDE |
|---|---|---|
| 1 | -19.9917755 | -0.3257001 |
| 2 | -20.0095272 | -0.3717296 |
| 3 | -20.0271046 | -0.4173092 |
| 4 | -20.0445454 | -0.4625413 |
| 5 | -20.0618908 | -0.5075300 |
| 6 | -20.0791814 | -0.5523719 |
| 7 | -20.0964482 | -0.5971643 |
| 8 | -20.1137354 | -0.6420070 |
| 9 | -20.1310773 | -0.6869949 |
| 10 | -20.1485112 | -0.7322304 |
| 11 | -20.1660786 | -0.7778108 |
| 12 | -20.1838200 | -0.8238437 |
| 13 | -20.1952195 | -0.8194673 |
| 14 | -20.2066157 | -0.8150917 |
| 15 | -20.2180085 | -0.8107204 |
| 16 | -20.2293978 | -0.8063491 |
| 17 | -20.2407870 | -0.8019777 |
| 18 | -20.2521799 | -0.7976081 |
| 19 | -20.2635727 | -0.7932368 |
| 20 | -20.2749689 | -0.7888655 |
| 21 | -20.2863717 | -0.7844916 |
| 22 | -20.2977817 | -0.7801160 |
| 23 | -20.3092017 | -0.7757362 |
| 24 | -20.2914295 | -0.7296742 |
| 25 | -20.2738349 | -0.6840639 |
| 26 | -20.2563736 | -0.6387968 |
| 27 | -20.2390113 | -0.5937765 |
| 28 | -20.2217069 | -0.5488996 |
| 29 | -20.2044265 | -0.5040705 |
| 30 | -20.1871257 | -0.4591919 |
| 31 | -20.1697702 | -0.4141656 |
| 32 | -20.1523259 | -0.3688934 |
| 33 | -20.1347485 | -0.3232720 |
| 34 | -20.1170001 | -0.2771998 |
| 35 | -20.1055973 | -0.2816189 |
| 36 | -20.0942011 | -0.2860338 |
| 37 | -20.0828152 | -0.2904470 |
| 38 | -20.0714326 | -0.2948558 |
| 39 | -20.0600536 | -0.2992630 |
| 40 | -20.0486743 | -0.3036693 |
| 41 | -20.0373020 | -0.3080757 |
| 42 | -20.0259230 | -0.3124803 |
| 43 | -20.0145440 | -0.3168858 |
| 44 | -20.0031614 | -0.3212921 |

**********
* PHOTO FRAME NUMBER 2 OF 8 *
**********

FRAME 125

| | YEAR | MONTH | DAY | HOUR | MINUTE | SECOND |
|---|---|---|---|---|---|---|
| GMT | 67 | 2 | 20 | 4 | 44 | 34.299 |

| | | | | | |
|---|---|---|---|---|---|
| LONGITUDE OF NADIR POINT | = | -20.0238876 DEG | LATITUDE OF NADIR POINT | = | -0.5996716 DEG |
| LONG OF CAMERA AXIS INTERSECT | = | -20.0327737 DEG | LAT OF CAMERA AXIS INTERSECT | = | -0.5961141 DEG |
| SPACECRAFT RADIUS | = | 1783.1644287 KM | SPACECRAFT ALTITUDE | = | 45.0744324 KM |
| MEAN ALTITUDE RATE | = | -0.0079303 KM/SEC | TIME FROM PERIAPSIS | = | -15.2639272 SEC |
| HORIZONTAL VELOCITY | = | 1.9172049 KM/SEC | TRUE ANOMALY | = | 359.0596428 DEG |
| SCALE FACTOR (HIGH) | = | 0.0135329 M/KM | TILT DISTANCE (HIGH) | = | 3.9332246 MM |
| SCALE FACTOR (LOW) | = | 0.0017748 M/KM | TILT DISTANCE (LOW) | = | 0.5158327 MM |
| IMAGE MOTION COMPENSATION (V/H) | = | 0.0425335 RAD/SEC | SWING ANGLE | = | 90.7321062 DEG |
| EMISSION ANGLE | = | 0.3791694 DEG | INCIDENCE ANGLE | = | 72.7038546 DEG |
| PHASE ANGLE | = | 72.3490057 DEG | NORTH DEVIATION ANGLE | = | 338.9196587 DEG |
| TILT ANGLE | = | 0.3694329 DEG | RESOLUTION CONSTANT | = | 0.9781360 MTR |
| TILT AZIMUTH | = | 291.8130112 DEG | SUN AZIMUTH AT PRINCIPAL GND PT | = | 91.3341827 DEG |
| SUN ANGLE AT NADIR | = | 72.6948853 DEG | SUN ARC AT NADIR | = | 2205.2279358 KM |
| LONGITUDE DISTANCE TO TARGET | = | -0.1908877 DEG | LATITUDE DISTANCE TO TARGET | = | 0.2333282 DEG |
| LONGITUDE ARC LENGTH TO TARGET | = | -5.7906531 KM | LATITUDE ARC LENGTH TO TARGET | = | 7.0781022 KM |
| FORWARD OVERLAP RATIO | = | 6.0576527 PCT | SIDE OVERLAP RATIO | = | 0. PCT |
| TIME BETWEEN PHOTOS | = | 1.9999087 SEC | ALPHA | = | 0.3548001 DEG. |

| DIRECTION COSINES TO TARGET | X | Y | Z | MAGNITUDE (KM) |
|---|---|---|---|---|
| CAMERA AXIS | -0.87919074 | 0.45433048 | -0.14355300 | 46.01626825 |
| C1 | -0.94150425 | 0.33675563 | 0.01286048 | 45.07539368 |
| C2 | -0.88863205 | 0.42927327 | 0.16142343 | 45.84895325 |
| C3 | -0.93539128 | 0.31112617 | -0.16805855 | 45.84754944 |
| C4 | -0.96290579 | 0.23298163 | -0.13613234 | 45.87495422 |
| | -0.91614658 | 0.35112873 | 0.19334963 | 45.87635803 |

| STATE VECTOR (1950.0) | X | Y | Z | X DOT | Y DOT | Z DOT |
|---|---|---|---|---|---|---|
| | -376.7929039 | -1602.8177643 | -684.6004028 | 1.7634042 | -0.0864727 | -0.7474394 |

LONG -19.3382 DEG
LATI -0.2156 DEG

LONG -19.7733 DEG
LATI -1.3443 DEG

(1) * 36.69472 KM * (2)

LOW RESOLUTION

31.08767 KM 31.08553 KM

(4) * 36.86306 KM * (3)

LONG -20.2935 DEG
LATI 0.1556 DEG

LONG -20.7306 DEG
LATI -0.9783 DEG

LONG -19.8742 DEG
LATI -0.3712 DEG

LONG -20.0662 DEG
LATI -0.8692 DEG

(1) * 16.19057 KM * (2)

HIGH RESOLUTION

4.07204 KM 4.07191 KM

(4) * 16.20025 KM * (3)

LONG -19.9994 DEG
LATI -0.3228 DEG

LONG -20.1915 DEG
LATI -0.8211 DEG

LOW RESOLUTION 125

| INDEX | LONGITUDE | LATITUDE |
|---|---|---|
| 1 | -19.3382220 | -0.2155744 |
| 2 | -19.3813443 | -0.3263814 |
| 3 | -19.4223700 | -0.4320240 |
| 4 | -19.4618518 | -0.5338800 |
| 5 | -19.5002546 | -0.6331517 |
| 6 | -19.5380085 | -0.7309224 |
| 7 | -19.5755095 | -0.8282142 |
| 8 | -19.6131406 | -0.9260311 |
| 9 | -19.6513009 | -1.0253924 |
| 10 | -19.6903934 | -1.1273901 |
| 11 | -19.7308862 | -1.2332316 |
| 12 | -19.7732913 | -1.3443016 |
| 13 | -19.8649423 | -1.3089204 |
| 14 | -19.9535503 | -1.2747822 |
| 15 | -20.0399079 | -1.2415755 |
| 16 | -20.1247284 | -1.2090203 |
| 17 | -20.2086818 | -1.1768586 |
| 18 | -20.2924063 | -1.1448447 |
| 19 | -20.3765371 | -1.1127360 |
| 20 | -20.4617131 | -1.0802892 |
| 21 | -20.5486169 | -1.0472481 |
| 22 | -20.6379831 | -1.0133379 |
| 23 | -20.7306244 | -0.9782572 |
| 24 | -20.6872663 | -0.8669678 |
| 25 | -20.6460187 | -0.7608617 |
| 26 | -20.6063354 | -0.6585557 |
| 27 | -20.5677345 | -0.5588444 |
| 28 | -20.5297964 | -0.4606348 |
| 29 | -20.4921141 | -0.3629025 |
| 30 | -20.4543056 | -0.2646391 |
| 31 | -20.4159746 | -0.1648201 |
| 32 | -20.3767078 | -0.0623460 |
| 33 | -20.3360410 | 0.0439958 |
| 34 | -20.2934582 | 0.1555994 |
| 35 | -20.2012506 | 0.1194105 |
| 36 | -20.1122565 | 0.0845569 |
| 37 | -20.0256703 | 0.0507142 |
| 38 | -19.9407609 | 0.0175929 |
| 39 | -19.8568554 | -0.0150759 |
| 40 | -19.7733152 | -0.0475373 |
| 41 | -19.6895056 | -0.0800387 |
| 42 | -19.6047838 | -0.1128287 |
| 43 | -19.5184913 | -0.1461626 |
| 44 | -19.4299002 | -0.1803102 |

HIGH RESOLUTION 125

| INDEX | LONGITUDE | LATITUDE |
|---|---|---|
| 1 | -19.8741801 | -0.3712404 |
| 2 | -19.8919284 | -0.4172571 |
| 3 | -19.9094989 | -0.4628221 |
| 4 | -19.9269364 | -0.5080423 |
| 5 | -19.9442749 | -0.5530174 |
| 6 | -19.9615588 | -0.5978464 |
| 7 | -19.9788220 | -0.6426269 |
| 8 | -19.9961023 | -0.6874568 |
| 9 | -20.0134375 | -0.7324328 |
| 10 | -20.0308647 | -0.7776546 |
| 11 | -20.0484250 | -0.8232222 |
| 12 | -20.0661597 | -0.8692414 |
| 13 | -20.0775559 | -0.8648616 |
| 14 | -20.0889485 | -0.8604843 |
| 15 | -20.1003344 | -0.8561087 |
| 16 | -20.1117203 | -0.8517357 |
| 17 | -20.1231029 | -0.8473618 |
| 18 | -20.1344888 | -0.8429896 |
| 19 | -20.1458747 | -0.8386157 |
| 20 | -20.1572642 | -0.8342419 |
| 21 | -20.1686604 | -0.8298663 |
| 22 | -20.1800632 | -0.8254881 |
| 23 | -20.1914766 | -0.8211074 |
| 24 | -20.1737146 | -0.7750677 |
| 25 | -20.1561270 | -0.7294779 |
| 26 | -20.1386793 | -0.6842338 |
| 27 | -20.1213236 | -0.6392340 |
| 28 | -20.1040297 | -0.5943793 |
| 29 | -20.0867560 | -0.5495724 |
| 30 | -20.0694654 | -0.5047160 |
| 31 | -20.0521202 | -0.4597110 |
| 32 | -20.0346828 | -0.4144601 |
| 33 | -20.0171156 | -0.3688618 |
| 34 | -19.9993775 | -0.3228118 |
| 35 | -19.9879780 | -0.3272233 |
| 36 | -19.9765885 | -0.3316313 |
| 37 | -19.9652026 | -0.3360368 |
| 38 | -19.9538236 | -0.3404397 |
| 39 | -19.9424479 | -0.3448409 |
| 40 | -19.9310756 | -0.3492395 |
| 41 | -19.9197032 | -0.3536382 |
| 42 | -19.9083276 | -0.3580377 |
| 43 | -19.8969486 | -0.3624363 |
| 44 | -19.8855696 | -0.3668375 |

**********
* PHOTO FRAME NUMBER 3 OF 8 *
**********

## FRAME 126

| | YEAR | MONTH | DAY | HOUR | MINUTE | SECOND |
|---|---|---|---|---|---|---|
| GMT | 67 | 2 | 20 | 4 | 44 | 36.300 |

| | | | | | |
|---|---|---|---|---|---|
| LONGITUDE OF NADIR POINT | = | -19.9092293 | DEG | LATITUDE OF NADIR POINT | = -0.6439963 DEG |
| LONG OF CAMERA AXIS INTERSECT | = | -19.9151336 | DEG | LATI OF CAMERA AXIS INTERSECT | = -0.6415887 DEG |
| SPACECRAFT RADIUS | = | 1783.1496124 | KM | SPACECRAFT ALTITUDE | = 45.0596161 KM |
| MEAN ALTITUDE RATE | = | -0.0068920 | KM/SEC | TIME FROM PERIAPSIS | = -13.2652084 SEC |
| HORIZONTAL VELOCITY | = | 1.9172209 | KM/SEC | TRUE ANOMALY | = 359.1827660 DEG |
| SCALE FACTOR (HIGH) | = | 0.0135375 | M/KM | TILT DISTANCE (HIGH) | = 2.6231841 MM |
| SCALE FACTOR (LOW) | = | 0.0017754 | M/KM | TILT DISTANCE (LOW) | = 0.3440241 MM |
| IMAGE MOTION COMPENSATION (V/H) | = | 0.0425484 | RAD/SEC | SWING ANGLE | = 91.0957489 DEG |
| EMISSION ANGLE | = | 0.2528546 | DEG | INCIDENCE ANGLE | = 72.5849180 DEG |
| PHASE ANGLE | = | 72.3490057 | DEG | NORTH DEVIATION ANGLE | = 338.9207039 DEG |
| TILT ANGLE | = | 0.2463876 | DEG | RESOLUTION CONSTANT | = 0.9778029 MTR |
| TILT AZIMUTH | = | 292.1746368 | DEG | SUN AZIMUTH AT PRINCIPAL GND PT | = 91.3195543 DEG |
| SUN ANGLE AT NADIR | = | 72.5789566 | DEG | SUN ARC AT NADIR | = 2201.7112122 KM |
| LONGITUDE DISTANCE TO TARGET | = | -0.0762293 | DEG | LATITUDE DISTANCE TO TARGET | = 0.1890037 DEG |
| LONGITUDE ARC LENGTH TO TARGET | = | -2.3124468 | KM | LATITUDE ARC LENGTH TO TARGET | = 5.7335006 KM |
| FORWARD OVERLAP RATIO | = | 6.0219048 | PCT | SIDE OVERLAP RATIO | = 0. PCT |
| TIME BETWEEN PHOTOS | = | 2.0000696 | SEC | ALPHA | = 0.2358899 DEG. |

| | X | Y | Z | MAGNITUDE (KM) |
|---|---|---|---|---|
| DIRECTION COSINES TO TARGET | -0.91547862 | 0.38561594 | -0.11488798 | 45.49263763 |
| CAMERA AXIS | -0.94150260 | 0.33676024 | 0.01286055 | 45.06004333 |
| C1 | -0.88862995 | 0.42927761 | 0.16142351 | 45.83789062 |
| C2 | -0.93538976 | 0.31113075 | -0.16805848 | 45.83650208 |
| C3 | -0.96290465 | 0.23298634 | -0.13613227 | 45.85475159 |
| C4 | -0.91614485 | 0.35113320 | 0.19334970 | 45.85614014 |

| | X | Y | Z | X DOT | Y DOT | Z DOT |
|---|---|---|---|---|---|---|
| STATE VECTOR (1950.0) | -373.2654457 | -1602.9879456 | -686.0941010 | 1.7640533 | -0.0837006 | -0.7462529 |

LONG -19.2203 DEG
LATI -0.2609 DEG

LONG -19.6555 DEG
LATI -1.3901 DEG

(1) • 36.71015 KM • (2)

LOW RESOLUTION

31.07651 KM 31.07436 KM

(4) • 36.82227 KM • (3)

LONG -20.1755 DEG
LATI 0.1093 DEG

LONG -20.6122 DEG
LATI -1.0233 DEG

LONG -19.7566 DEG
LATI -0.4168 DEG

LONG -19.9485 DEG
LATI -0.9147 DEG

(1) • 16.18667 KM • (2)

HIGH RESOLUTION

4.07061 KM 4.07048 KM

(4) • 16.19311 KM • (3)

LONG -19.8818 DEG
LATI -0.3684 DEG

LONG -20.0738 DEG
LATI -0.8665 DEG

LOW RESOLUTION 126

| INDEX | LONGITUDE | LATITUDE |
|---|---|---|
| 1 | -19.2202885 | -0.2608731 |
| 2 | -19.2634315 | -0.3717262 |
| 3 | -19.3044741 | -0.4774140 |
| 4 | -19.3439662 | -0.5793144 |
| 5 | -19.3823860 | -0.6786271 |
| 6 | -19.4201536 | -0.7764397 |
| 7 | -19.4576650 | -0.8737741 |
| 8 | -19.4953129 | -0.9716320 |
| 9 | -19.5334835 | -1.0710368 |
| 10 | -19.5725896 | -1.1730790 |
| 11 | -19.6130927 | -1.2789657 |
| 12 | -19.6555116 | -1.3900852 |
| 13 | -19.7472274 | -1.3545887 |
| 14 | -19.8358729 | -1.3203473 |
| 15 | -19.9222441 | -1.2870484 |
| 16 | -20.0070546 | -1.2544120 |
| 17 | -20.0909772 | -1.2221804 |
| 18 | -20.1746435 | -1.1901041 |
| 19 | -20.2586925 | -1.1579416 |
| 20 | -20.3437660 | -1.1254478 |
| 21 | -20.4305401 | -1.0923683 |
| 22 | -20.5197456 | -1.0584300 |
| 23 | -20.6121924 | -1.0233271 |
| 24 | -20.5688889 | -0.9121606 |
| 25 | -20.5276892 | -0.8061706 |
| 26 | -20.4880502 | -0.7039773 |
| 27 | -20.4494972 | -0.6043744 |
| 28 | -20.4115999 | -0.5062715 |
| 29 | -20.3739655 | -0.4086468 |
| 30 | -20.3361981 | -0.3104919 |
| 31 | -20.2979114 | -0.2107813 |
| 32 | -20.2586856 | -0.1084216 |
| 33 | -20.2180631 | -0.0021984 |
| 34 | -20.1755280 | 0.1092813 |
| 35 | -20.0834470 | 0.0732410 |
| 36 | -19.9945519 | 0.0385206 |
| 37 | -19.9080374 | 0.0047958 |
| 38 | -19.8231757 | -0.0282189 |
| 39 | -19.7392907 | -0.0607861 |
| 40 | -19.6557472 | -0.0931578 |
| 41 | -19.5719135 | -0.1255799 |
| 42 | -19.4871509 | -0.1582965 |
| 43 | -19.4007831 | -0.1915655 |
| 44 | -19.3120966 | -0.2256575 |

HIGH RESOLUTION 126

| INDEX | LONGITUDE | LATITUDE |
|---|---|---|
| 1 | -19.7565813 | -0.4167653 |
| 2 | -19.7743227 | -0.4627701 |
| 3 | -19.7918899 | -0.5083266 |
| 4 | -19.8093207 | -0.5535356 |
| 5 | -19.8266556 | -0.5985004 |
| 6 | -19.8439326 | -0.6433184 |
| 7 | -19.8611891 | -0.6880886 |
| 8 | -19.8784661 | -0.7329075 |
| 9 | -19.8957942 | -0.7778732 |
| 10 | -19.9132180 | -0.8230847 |
| 11 | -19.9307752 | -0.8686430 |
| 12 | -19.9485028 | -0.9146511 |
| 13 | -19.9598956 | -0.9102678 |
| 14 | -19.9712849 | -0.9058863 |
| 15 | -19.9826674 | -0.9015081 |
| 16 | -19.9940464 | -0.8971317 |
| 17 | -20.0054257 | -0.8927561 |
| 18 | -20.0168047 | -0.8883805 |
| 19 | -20.0281873 | -0.8840049 |
| 20 | -20.0395696 | -0.8796276 |
| 21 | -20.0509591 | -0.8752503 |
| 22 | -20.0623553 | -0.8708704 |
| 23 | -20.0737584 | -0.8664880 |
| 24 | -20.0560031 | -0.8204671 |
| 25 | -20.0384290 | -0.7748978 |
| 26 | -20.0209882 | -0.7296725 |
| 27 | -20.0036430 | -0.6846923 |
| 28 | -19.9863558 | -0.6398564 |
| 29 | -19.9690924 | -0.5950691 |
| 30 | -19.9518087 | -0.5502306 |
| 31 | -19.9344735 | -0.5052462 |
| 32 | -19.9170430 | -0.4600149 |
| 33 | -19.8994861 | -0.4144362 |
| 34 | -19.8817513 | -0.3684067 |
| 35 | -19.8703587 | -0.3728114 |
| 36 | -19.8589692 | -0.3772126 |
| 37 | -19.8475902 | -0.3816103 |
| 38 | -19.8362145 | -0.3860064 |
| 39 | -19.8248422 | -0.3904008 |
| 40 | -19.8134699 | -0.3947943 |
| 41 | -19.8020978 | -0.3991870 |
| 42 | -19.7907255 | -0.4035805 |
| 43 | -19.7793498 | -0.4079732 |
| 44 | -19.7679672 | -0.4123684 |

**********
* PHOTO FRAME NUMBER 4 OF 6 *
**********

## FRAME 127

| | YEAR | MONTH | DAY | HOUR | MINUTE | SECOND |
|---|---|---|---|---|---|---|
| GMT | 67 | 2 | 20 | 4 | 44 | 38.300 |

| | | | | | |
|---|---|---|---|---|---|
| LONGITUDE OF NADIR POINT | = | -19.7945671 | DEG | LATITUDE OF NADIR POINT | = -0.6883191 DEG |
| LONG OF CAMERA AXIS INTERSECT | = | -19.7374873 | DEG | LATI OF CAMERA AXIS INTERSECT | = -0.6870596 DEG |
| SPACECRAFT RADIUS | = | 1783.1368713 | KM | SPACECRAFT ALTITUDE | = 45.0468750 KM |
| MEAN ALTITUDE RATE | = | -0.0058537 | KM/SEC | TIME FROM PERIAPSIS | = -11.2664658 SEC |
| HORIZONTAL VELOCITY | = | 1.9172344 | KM/SEC | TRUE ANOMALY | = 359.3058968 DEG |
| SCALE FACTOR (HIGH) | = | 0.0135414 | M/KM | TILT DISTANCE (HIGH) | = 1.3257764 MM |
| SCALE FACTOR (LOW) | = | 0.0017759 | M/KM | TILT DISTANCE (LOW) | = 0.1738723 MM |
| IMAGE MOTION COMPENSATION (V/H) | = | 0.0425610 | RAD/SEC | SWING ANGLE | = 92.1864061 DEG |
| EMISSION ANGLE | = | 0.1280133 | DEG | INCIDENCE ANGLE | = 72.4659929 DEG |
| PHASE ANGLE | = | 72.3490067 | DEG | NORTH DEVIATION ANGLE | = 338.9219322 DEG |
| TILT ANGLE | = | 0.1245267 | DEG | RESOLUTION CONSTANT | = 0.9775195 MTR |
| TILT AZIMUTH | = | 293.2631569 | DEG | SUN AZIMUTH AT PRINCIPAL GND PT | = 91.3047247 DEG |
| SUN ANGLE AT NADIR | = | 72.4630365 | DEG | SUN ARC AT NADIR | = 2198.1947327 KM |
| LONGITUDE DISTANCE TO TARGET | = | 0.0384328 | DEG | LATITUDE DISTANCE TO TARGET | = 0.1446809 DEG |
| LONGITUDE ARC LENGTH TO TARGET | = | 1.1658752 | KM | LATITUDE ARC LENGTH TO TARGET | = 4.3889509 KM |
| FORWARD OVERLAP RATIO | = | 5.9932140 | PCT | SIDE OVERLAP RATIO | = 0. PCT |
| TIME BETWEEN PHOTOS | = | 1.9999087 | SEC | ALPHA | = 0.1169781 DEG. |

| DIRECTION COSINES TO TARGET | X | Y | Z | MAGNITUDE (KM) |
|---|---|---|---|---|
| CAMERA AXIS | -0.94591756 | 0.31308234 | -0.08496714 | 45.28104734 |
| C1 | -0.94150093 | 0.33676489 | 0.01286062 | 45.04698181 |
| C2 | -0.88862782 | 0.42928199 | 0.16142358 | 45.82916260 |
| C3 | -0.93538823 | 0.31113539 | -0.16805842 | 45.82777405 |
| C4 | -0.96290351 | 0.23299111 | -0.13613222 | 45.83689880 |
| | -0.91614310 | 0.35113771 | 0.19334977 | 45.83827209 |

| STATE VECTOR (1950.0) | X | Y | Z | X DOT | Y DOT | Z DOT |
|---|---|---|---|---|---|---|
| | -369.7366943 | -1603.1525726 | -687.5854187 | 1.7646964 | -0.0839282 | -0.7450638 |

LONG -19.1023 DEG
LATI -0.3061 DEG

LONG -19.5377 DEG
LATI -1.4359 DEG

(1) • 36.72746 KM • (2)

LOW RESOLUTION

31.06714 KM 31.06500 KM

(4) • 36.78344 KM • (3)

LONG -20.0576 DEG
LATI 0.0630 DEG

LONG -20.4938 DEG
LATI -1.0684 DEG

LONG -19.6390 DEG
LATI -0.4623 DEG

LONG -19.8308 DEG
LATI -0.9601 DEG

(1) • 16.18358 KM • (2)

HIGH RESOLUTION

4.06939 KM 4.06927 KM

(4) • 16.18680 KM • (3)

LONG -19.7641 DEG
LATI -0.4140 DEG

LONG -19.9561 DEG
LATI -0.9119 DEG

LOW RESOLUTION 127

| INDEX | LONGITUDE | LATITUDE |
|---|---|---|
| 1 | -19.1023176 | -0.3061479 |
| 2 | -19.1454775 | -0.4170556 |
| 3 | -19.1865406 | -0.5227938 |
| 4 | -19.2260499 | -0.6247420 |
| 5 | -19.2644832 | -0.7241025 |
| 6 | -19.3022678 | -0.8219620 |
| 7 | -19.3397963 | -0.9193434 |
| 8 | -19.3774581 | -1.0172482 |
| 9 | -19.4156423 | -1.1167018 |
| 10 | -19.4547656 | -1.2187935 |
| 11 | -19.4952822 | -1.3247322 |
| 12 | -19.5377181 | -1.4359081 |
| 13 | -19.6295056 | -1.4002904 |
| 14 | -19.7181923 | -1.3659430 |
| 15 | -19.8045805 | -1.3325520 |
| 16 | -19.8893876 | -1.2998345 |
| 17 | -19.9732759 | -1.2675285 |
| 18 | -20.0568912 | -1.2353882 |
| 19 | -20.1408648 | -1.2031702 |
| 20 | -20.2258391 | -1.1706295 |
| 21 | -20.3124905 | -1.1375108 |
| 22 | -20.4015391 | -1.1035408 |
| 23 | -20.4938011 | -1.0684166 |
| 24 | -20.4505455 | -0.9573654 |
| 25 | -20.4093938 | -0.8514864 |
| 26 | -20.3698025 | -0.7493981 |
| 27 | -20.3312905 | -0.6498993 |
| 28 | -20.2934377 | -0.5518998 |
| 29 | -20.2558408 | -0.4543758 |
| 30 | -20.2181144 | -0.3563250 |
| 31 | -20.1798687 | -0.2567195 |
| 32 | -20.1406839 | -0.1544673 |
| 33 | -20.1001058 | -0.0483569 |
| 34 | -20.0576117 | 0.0630042 |
| 35 | -19.9656568 | 0.0271116 |
| 36 | -19.8768542 | -0.0074795 |
| 37 | -19.7904043 | -0.0410861 |
| 38 | -19.7055838 | -0.0739923 |
| 39 | -19.6217194 | -0.1064639 |
| 40 | -19.5381689 | -0.1387485 |
| 41 | -19.4543078 | -0.1710920 |
| 42 | -19.3694940 | -0.2037386 |
| 43 | -19.2830513 | -0.2369435 |
| 44 | -19.1942587 | -0.2709801 |

HIGH RESOLUTION 127

| INDEX | LONGITUDE | LATITUDE |
|---|---|---|
| 1 | -19.6389689 | -0.4622766 |
| 2 | -19.6567068 | -0.5082736 |
| 3 | -19.6742706 | -0.5538208 |
| 4 | -19.6916981 | -0.5990221 |
| 5 | -19.7090297 | -0.6439784 |
| 6 | -19.7263031 | -0.6887879 |
| 7 | -19.7435563 | -0.7335512 |
| 8 | -19.7608263 | -0.7783624 |
| 9 | -19.7781510 | -0.8233187 |
| 10 | -19.7955716 | -0.8685226 |
| 11 | -19.8131251 | -0.9140722 |
| 12 | -19.8308461 | -0.9600727 |
| 13 | -19.8422353 | -0.9556843 |
| 14 | -19.8536212 | -0.9513010 |
| 15 | -19.8650038 | -0.9469186 |
| 16 | -19.8763759 | -0.9425388 |
| 17 | -19.8877518 | -0.9381589 |
| 18 | -19.8991275 | -0.9337816 |
| 19 | -19.9104996 | -0.9294026 |
| 20 | -19.9218788 | -0.9250236 |
| 21 | -19.9332612 | -0.9206437 |
| 22 | -19.9446506 | -0.9162613 |
| 23 | -19.9560502 | -0.9118755 |
| 24 | -19.9383020 | -0.8658733 |
| 25 | -19.9207346 | -0.8203211 |
| 26 | -19.9033005 | -0.7751129 |
| 27 | -19.8859622 | -0.7301489 |
| 28 | -19.8686852 | -0.6853309 |
| 29 | -19.8514254 | -0.6405599 |
| 30 | -19.8341553 | -0.5957393 |
| 31 | -19.8168237 | -0.5507719 |
| 32 | -19.7994032 | -0.5055586 |
| 33 | -19.7818530 | -0.4599979 |
| 34 | -19.7641287 | -0.4139846 |
| 35 | -19.7527359 | -0.4183824 |
| 36 | -19.7413499 | -0.4227767 |
| 37 | -19.7299743 | -0.4271686 |
| 38 | -19.7186022 | -0.4315587 |
| 39 | -19.7072299 | -0.4359462 |
| 40 | -19.6958609 | -0.4403329 |
| 41 | -19.6844888 | -0.4447204 |
| 42 | -19.6731164 | -0.4491071 |
| 43 | -19.6617408 | -0.4534947 |
| 44 | -19.6503582 | -0.4578848 |

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* PHOTO FRAME NUMBER 5 OF 8 *
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## FRAME 128

| | YEAR | MONTH | DAY | HOUR | MINUTE | SECOND |
|---|---|---|---|---|---|---|
| GMT | 67 | 2 | 20 | 4 | 44 | 40.399 |

| | | | | | |
|---|---|---|---|---|---|
| LONGITUDE OF NADIR POINT | = | -19.6741638 DEG | LATITUDE OF NADIR POINT | = | -0.7348549 DEG |
| LONG OF CAMERA AXIS INTERSECT | = | -19.6739630 DEG | LATI OF CAMERA AXIS INTERSECT | = | -0.7348037 DEG |
| SPACECRAFT RADIUS | = | 1783.1257172 KM | SPACECRAFT ALTITUDE | = | 45.0357208 KM |
| MEAN ALTITUDE RATE | = | -0.0047633 KM/SEC | TIME FROM PERIAPSIS | = | -9.1677463 SEC |
| HORIZONTAL VELOCITY | = | 1.9172465 KM/SEC | TRUE ANOMALY | = | 359.4351921 DEG |
| SCALE FACTOR (HIGH) | = | 0.0135448 M/KM | TILT DISTANCE (HIGH) | = | 0.1970103 MM |
| SCALE FACTOR (LOW) | = | 0.0017764 M/KM | TILT DISTANCE (LOW) | = | 0.0258374 MM |
| IMAGE MOTION COMPENSATION (V/H) | = | 0.0425717 RAD/SEC | SWING ANGLE | = | 234.2251053 DEG |
| EMISSION ANGLE | = | 0.0221173 DEG | INCIDENCE ANGLE | = | 72.3411283 DEG |
| PHASE ANGLE | = | 72.3490057 DEG | NORTH DEVIATION ANGLE | = | 338.9234314 DEG |
| TILT ANGLE | = | 0.0185047 DEG | RESOLUTION CONSTANT | = | 0.9772755 MTR |
| TILT AZIMUTH | = | 75.2940254 DEG | SUN AZIMUTH AT PRINCIPAL GND PT | = | 91.2889385 DEG |
| SUN ANGLE AT NADIR | = | 72.3413267 DEG | SUN ARC AT NADIR | = | 2194.5025940 KM |
| LONGITUDE DISTANCE TO TARGET | = | 0.1588361 DEG | LATITUDE DISTANCE TO TARGET | = | 0.0981451 DEG |
| LONGITUDE ARC LENGTH TO TARGET | = | 4.8183563 KM | LATITUDE ARC LENGTH TO TARGET | = | 2.9772697 KM |
| FORWARD OVERLAP RATIO | = | 1.2639485 PCT | SIDE OVERLAP RATIO | = | 0. PCT |
| TIME BETWEEN PHOTOS | = | 2.1000087 SEC | ALPHA | = | -0.0078782 DEG. |

| DIRECTION COSINES TO TARGET | X | Y | Z | MAGNITUDE (KM) |
|---|---|---|---|---|
| CAMERA AXIS | -0.97071065 | 0.23436659 | -0.05285005 | 45.39961004 |
| C1 | -0.94149920 | 0.33676973 | 0.01286069 | 45.03573608 |
| C2 | -0.88862561 | 0.42928655 | 0.16142365 | 45.82249451 |
| C3 | -0.93538664 | 0.31114021 | -0.16805834 | 45.82112122 |
| C4 | -0.96290231 | 0.23299607 | -0.13613215 | 45.82063293 |
| | -0.91614129 | 0.35114240 | 0.19334984 | 45.82200623 |

| STATE VECTOR (1950.0) | X | Y | Z | X DOT | Y DOT | Z DOT |
|---|---|---|---|---|---|---|
| | -366.0301208 | -1603.3194580 | -689.1487427 | 1.7653650 | -0.0780168 | -0.7438124 |

LONG -18.9784 DEG
LATI -0.3537 DEG

LONG -19.4140 DEG
LATI -1.4841 DEG

* (1) 36.74769 KM * (2)

LOW RESOLUTION

31.05923 KM 31.05711 KM

(4) * 36.74473 KM * (3)

LONG -19.9338 DEG
LATI 0.0145 DEG

LONG -20.3695 DEG
LATI -1.1158 DEG

LONG -19.5155 DEG
LATI -0.5100 DEG

LONG -19.7073 DEG
LATI -1.0078 DEG

* (1) 16.18123 KM * (2)

HIGH RESOLUTION

4.06836 KM 4.06824 KM

(4) * 16.18106 KM * (3)

LONG -19.6406 DEG
LATI -0.4618 DEG

LONG -19.8325 DEG
LATI -0.9595 DEG

LOW RESOLUTION 128

| INDEX | LONGITUDE | LATITUDE |
|---|---|---|
| 1 | -18.9784007 | -0.3536629 |
| 2 | -19.0215812 | -0.4646321 |
| 3 | -19.0626683 | -0.5704284 |
| 4 | -19.1021979 | -0.6724338 |
| 5 | -19.1406519 | -0.7718498 |
| 6 | -19.1784537 | -0.8697640 |
| 7 | -19.2159991 | -0.9672009 |
| 8 | -19.2536778 | -1.0651603 |
| 9 | -19.2918792 | -1.1646693 |
| 10 | -19.3310230 | -1.2668191 |
| 11 | -19.3715568 | -1.3728193 |
| 12 | -19.4140065 | -1.4840584 |
| 13 | -19.5058758 | -1.4483134 |
| 14 | -19.5946171 | -1.4138551 |
| 15 | -19.6810293 | -1.3803633 |
| 16 | -19.7658329 | -1.3475570 |
| 17 | -19.8496938 | -1.3151734 |
| 18 | -19.9332612 | -1.2829648 |
| 19 | -20.0171633 | -1.2506862 |
| 20 | -20.1020386 | -1.2180934 |
| 21 | -20.1885600 | -1.1849319 |
| 22 | -20.2774551 | -1.1509261 |
| 23 | -20.3695292 | -1.1157780 |
| 24 | -20.3263216 | -1.0048420 |
| 25 | -20.2852175 | -0.8990723 |
| 26 | -20.2456708 | -0.7970907 |
| 27 | -20.2072031 | -0.6976953 |
| 28 | -20.1693878 | -0.5997973 |
| 29 | -20.1318319 | -0.5023758 |
| 30 | -20.0941498 | -0.4044266 |
| 31 | -20.0559416 | -0.3049244 |
| 32 | -20.0168014 | -0.2027798 |
| 33 | -19.9762642 | -0.0967821 |
| 34 | -19.9338179 | 0.0144621 |
| 35 | -19.8419859 | -0.0212829 |
| 36 | -19.7532756 | -0.0557369 |
| 37 | -19.6668906 | -0.0892210 |
| 38 | -19.5821042 | -0.1220188 |
| 39 | -19.4982533 | -0.1543887 |
| 40 | -19.4146962 | -0.1865854 |
| 41 | -19.3307977 | -0.2188469 |
| 42 | -19.2459223 | -0.2514210 |
| 43 | -19.1593974 | -0.2845619 |
| 44 | -19.0704889 | -0.3185421 |

HIGH RESOLUTION 128

| INDEX | LONGITUDE | LATITUDE |
|---|---|---|
| 1 | -19.5154688 | -0.5100478 |
| 2 | -19.5332034 | -0.5560389 |
| 3 | -19.5507605 | -0.6015791 |
| 4 | -19.5681877 | -0.6467737 |
| 5 | -19.5855124 | -0.6917240 |
| 6 | -19.6027861 | -0.7365292 |
| 7 | -19.6200323 | -0.7812840 |
| 8 | -19.6372988 | -0.8260900 |
| 9 | -19.6546202 | -0.8710412 |
| 10 | -19.6720374 | -0.9162391 |
| 11 | -19.6895840 | -0.9617828 |
| 12 | -19.7073050 | -1.0077765 |
| 13 | -19.7186909 | -1.0033855 |
| 14 | -19.7300768 | -0.9989971 |
| 15 | -19.7414525 | -0.9946104 |
| 16 | -19.7528248 | -0.9902271 |
| 17 | -19.7641935 | -0.9858447 |
| 18 | -19.7755659 | -0.9814623 |
| 19 | -19.7869346 | -0.9770807 |
| 20 | -19.7983069 | -0.9726983 |
| 21 | -19.8096826 | -0.9683150 |
| 22 | -19.8210685 | -0.9639309 |
| 23 | -19.8324580 | -0.9595434 |
| 24 | -19.8147199 | -0.9135566 |
| 25 | -19.7971594 | -0.8680197 |
| 26 | -19.7797322 | -0.8228269 |
| 27 | -19.7624006 | -0.7778791 |
| 28 | -19.7451305 | -0.7330757 |
| 29 | -19.7278810 | -0.6883200 |
| 30 | -19.7106142 | -0.6435148 |
| 31 | -19.6932929 | -0.5985636 |
| 32 | -19.6758792 | -0.5533657 |
| 33 | -19.6583326 | -0.5078203 |
| 34 | -19.6406150 | -0.4618232 |
| 35 | -19.6292257 | -0.4662142 |
| 36 | -19.6178465 | -0.4706026 |
| 37 | -19.6064708 | -0.4749867 |
| 38 | -19.5950985 | -0.4793700 |
| 39 | -19.5837297 | -0.4837524 |
| 40 | -19.5723610 | -0.4881323 |
| 41 | -19.5609920 | -0.4925138 |
| 42 | -19.5496163 | -0.4968945 |
| 43 | -19.5382407 | -0.5012770 |
| 44 | -19.5268581 | -0.5056619 |

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* PHOTO FRAME NUMBER 6 OF 8 *
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## FRAME 129

| | YEAR | MONTH | DAY | HOUR | MINUTE | SECOND |
|---|---|---|---|---|---|---|
| GMT | 67 | 2 | 20 | 4 | 44 | 42.400 |

| | | | | | |
|---|---|---|---|---|---|
| LONGITUDE OF NADIR POINT | = | -19.5594678 DEG | LATITUDE OF NADIR POINT | = | -0.7791726 DEG |
| LONG OF CAMERA AXIS INTERSECT | = | -19.5563133 DEG | LATI OF CAMERA AXIS INTERSECT | = | -0.7802671 DEG |
| SPACECRAFT RADIUS | = | 1783.1172180 KM | SPACECRAFT ALTITUDE | = | 45.0272217 KM |
| MEAN ALTITUDE RATE | = | -0.0037249 KM/SEC | TIME FROM PERIAPSIS | = | -7.1690540 SEC |
| HORIZONTAL VELOCITY | = | 1.9172557 KM/SEC | TRUE ANOMALY | = | 359.5583229 DEG |
| SCALE FACTOR (HIGH) | = | 0.0135473 M/KM | TILT DISTANCE (HIGH) | = | 1.3870926 MM |
| SCALE FACTOR (LOW) | = | 0.0017767 M/KM | TILT DISTANCE (LOW) | = | 0.1819138 MM |
| IMAGE MOTION COMPENSATION (V/H) | = | 0.0425795 RAD/SEC | SWING ANGLE | = | 267.9429436 DEG |
| EMISSION ANGLE | = | 0.1339880 DEG | INCIDENCE ANGLE | = | 72.2222204 DEG |
| PHASE ANGLE | = | 72.3490067 DEG | NORTH DEVIATION ANGLE | = | 338.9250412 DEG |
| TILT ANGLE | = | 0.1302859 DEG | RESOLUTION CONSTANT | = | 0.9770934 MTR |
| TILT AZIMUTH | = | 109.0185270 DEG | SUN AZIMUTH AT PRINCIPAL GND PT | = | 91.2736998 DEG |
| SUN ANGLE AT NADIR | = | 72.2254229 DEG | SUN ARC AT NADIR | = | 2190.9866026 KM |
| LONGITUDE DISTANCE TO TARGET | = | 0.2735021 DEG | LATITUDE DISTANCE TO TARGET | = | 0.0538274 DEG |
| LONGITUDE ARC LENGTH TO TARGET | = | 8.2967941 KM | LATITUDE ARC LENGTH TO TARGET | = | 1.6328753 KM |
| FORWARD OVERLAP RATIO | = | 5.9490266 PCT | SIDE OVERLAP RATIO | = | 0. PCT |
| TIME BETWEEN PHOTOS | = | 2.0000696 SEC | ALPHA | = | -0.1267909 DEG. |

| | X | Y | Z | MAGNITUDE (KM) |
|---|---|---|---|---|
| DIRECTION COSINES TO TARGET | -0.98708969 | 0.15861371 | -0.02226260 | 45.83445835 |
| CAMERA AXIS | -0.94149753 | 0.33677439 | 0.01286076 | 45.02734375 |
| C1 | -0.88862347 | 0.42929095 | 0.16142373 | 45.81851196 |
| C2 | -0.93538511 | 0.31114486 | -0.16805827 | 45.81715393 |
| C3 | -0.96290117 | 0.23300085 | -0.13613208 | 45.80754089 |
| C4 | -0.91613953 | 0.35114694 | 0.19334991 | 45.80891418 |

| | X | Y | Z | X DOT | Y DOT | Z DOT |
|---|---|---|---|---|---|---|
| STATE VECTOR (1950.0) | -362.4987564 | -1603.4727173 | -690.6351700 | 1.7659956 | -0.0752437 | -0.7426180 |

LONG -18.8603 DEG
LATI -0.3989 DEG

LONG -19.2962 DEG
LATI -1.5300 DEG

(1) * 36.76889 KM * (2)

LOW RESOLUTION

31.05355 KM 31.05143 KM

(4) * 36.70984 KM * (3)

LONG -19.8159 DEG
LATI -0.0317 DEG

LONG -20.2512 DEG
LATI -1.1609 DEG

LONG -19.3978 DEG
LATI -0.5555 DEG

LONG -19.5896 DEG
LATI -1.0532 DEG

(1) * 16.17983 KM * (2)

HIGH RESOLUTION

4.06762 KM 4.06749 KM

(4) * 16.17644 KM * (3)

LONG -19.5230 DEG
LATI -0.5074 DEG

LONG -19.7148 DEG
LATI -1.0049 DEG

LOW RESOLUTION 129

| INDEX | LONGITUDE | LATITUDE |
|---|---|---|
| 1 | -18.8603477 | -0.3988907 |
| 2 | -18.9035556 | -0.5099240 |
| 3 | -18.9446597 | -0.6157834 |
| 4 | -18.9842134 | -0.7178486 |
| 5 | -19.0226877 | -0.8173226 |
| 6 | -19.0605066 | -0.9152948 |
| 7 | -19.0980725 | -1.0127873 |
| 8 | -19.1357684 | -1.1108056 |
| 9 | -19.1739900 | -1.2103727 |
| 10 | -19.2131476 | -1.3125839 |
| 11 | -19.2537019 | -1.4186473 |
| 12 | -19.2961719 | -1.5299530 |
| 13 | -19.3881233 | -1.4940859 |
| 14 | -19.4769158 | -1.4595166 |
| 15 | -19.5633588 | -1.4259283 |
| 16 | -19.6481624 | -1.3930358 |
| 17 | -19.7320096 | -1.3605762 |
| 18 | -19.8155360 | -1.3283002 |
| 19 | -19.8993700 | -1.2959618 |
| 20 | -19.9841564 | -1.2633186 |
| 21 | -20.0705652 | -1.2301145 |
| 22 | -20.1593165 | -1.1960762 |
| 23 | -20.2512133 | -1.1609016 |
| 24 | -20.2080534 | -1.0500681 |
| 25 | -20.1669903 | -0.9443991 |
| 26 | -20.1274810 | -0.8425124 |
| 27 | -20.0890543 | -0.7432099 |
| 28 | -20.0512800 | -0.6454042 |
| 29 | -20.0137584 | -0.5480732 |
| 30 | -19.9761138 | -0.4502153 |
| 31 | -19.9379435 | -0.3508088 |
| 32 | -19.8988371 | -0.2487598 |
| 33 | -19.8583410 | -0.1428619 |
| 34 | -19.8159356 | -0.0317279 |
| 35 | -19.7242131 | -0.0673277 |
| 36 | -19.6355879 | -0.1016563 |
| 37 | -19.5492578 | -0.1350260 |
| 38 | -19.4645019 | -0.1677196 |
| 39 | -19.3806615 | -0.1999990 |
| 40 | -19.2970872 | -0.2321112 |
| 41 | -19.2131543 | -0.2642976 |
| 42 | -19.1282177 | -0.2968042 |
| 43 | -19.0416040 | -0.3298845 |
| 44 | -18.9525826 | -0.3638134 |

HIGH RESOLUTION 129

| INDEX | LONGITUDE | LATITUDE |
|---|---|---|
| 1 | -19.3978393 | -0.5555283 |
| 2 | -19.4155705 | -0.6015151 |
| 3 | -19.4331274 | -0.6470520 |
| 4 | -19.4505479 | -0.6922439 |
| 5 | -19.4678762 | -0.7371900 |
| 6 | -19.4851427 | -0.7819918 |
| 7 | -19.5023890 | -0.8267440 |
| 8 | -19.5196557 | -0.8715458 |
| 9 | -19.5369737 | -0.9164953 |
| 10 | -19.5543838 | -0.9616881 |
| 11 | -19.5719306 | -1.0072283 |
| 12 | -19.5896447 | -1.0532194 |
| 13 | -19.6010339 | -1.0488242 |
| 14 | -19.6124132 | -1.0444315 |
| 15 | -19.6237888 | -1.0400414 |
| 16 | -19.6351576 | -1.0356539 |
| 17 | -19.6465230 | -1.0312680 |
| 18 | -19.6578920 | -1.0268831 |
| 19 | -19.6692574 | -1.0224989 |
| 20 | -19.6806262 | -1.0181131 |
| 21 | -19.6919985 | -1.0137264 |
| 22 | -19.7033775 | -1.0093380 |
| 23 | -19.7147601 | -1.0049488 |
| 24 | -19.6970289 | -0.9589748 |
| 25 | -19.6794753 | -0.9134490 |
| 26 | -19.6620550 | -0.8682699 |
| 27 | -19.6447301 | -0.8233340 |
| 28 | -19.6274669 | -0.7785434 |
| 29 | -19.6102207 | -0.7338005 |
| 30 | -19.5929573 | -0.6890081 |
| 31 | -19.5756428 | -0.6440680 |
| 32 | -19.5582361 | -0.5988829 |
| 33 | -19.5406961 | -0.5533503 |
| 34 | -19.5229855 | -0.5073661 |
| 35 | -19.5115995 | -0.5117502 |
| 36 | -19.5002205 | -0.5161326 |
| 37 | -19.4888449 | -0.5205108 |
| 38 | -19.4774759 | -0.5248872 |
| 39 | -19.4661036 | -0.5292637 |
| 40 | -19.4547381 | -0.5336393 |
| 41 | -19.4433661 | -0.5380148 |
| 42 | -19.4319937 | -0.5423904 |
| 43 | -19.4206145 | -0.5467669 |
| 44 | -19.4092321 | -0.5511459 |

**********  **********
* PHOTO FRAME NUMBER 7 OF 8 *
**********  **********

## FRAME 130

| | YEAR | MONTH | DAY | HOUR | MINUTE | SECOND |
|---|---|---|---|---|---|---|
| GMT | 67 | 2 | 20 | 4 | 44 | 44.400 |

| | | | | | | |
|---|---|---|---|---|---|---|
| LONGITUDE OF NADIR POINT | = | -19.4448204 | DEG | LATITUDE OF NADIR POINT | = | -0.8234869 | DEG |
| LONG OF CAMERA AXIS INTERSECT | = | -19.4386599 | DEG | LATI OF CAMERA AXIS INTERSECT | = | -0.8257297 | DEG |
| SPACECRAFT RADIUS | = | 1783.1108093 | KM | SPACECRAFT ALTITUDE | = | 45.0208130 | KM |
| MEAN ALTITUDE RATE | = | -0.0026864 | KM/SEC | TIME FROM PERIAPSIS | = | -5.1702688 | SEC |
| HORIZONTAL VELOCITY | = | 1.9172627 | KM/SEC | TRUE ANOMALY | = | 359.6814613 | DEG |
| SCALE FACTOR (HIGH) | = | 0.0135491 | M/KM | TILT DISTANCE (HIGH) | = | 2.6930655 | MM |
| SCALE FACTOR (LOW) | = | 0.0017769 | M/KM | TILT DISTANCE (LOW) | = | 0.3531889 | MM |
| IMAGE MOTION COMPENSATION (V/H) | = | 0.0425850 | RAD/SEC | SWING ANGLE | = | 268.9484863 | DEG |
| EMISSION ANGLE | = | 0.2596317 | DEG | INCIDENCE ANGLE | = | 72.1033230 | DEG |
| PHASE ANGLE | = | 72.3490067 | DEG | NORTH DEVIATION ANGLE | = | 338.9268456 | DEG |
| TILT ANGLE | = | 0.2529513 | DEG | RESOLUTION CONSTANT | = | 0.9769616 | MTR |
| TILT AZIMUTH | = | 110.0218210 | DEG | SUN AZIMUTH AT PRINCIPAL GND PT | = | 91.2582598 | DEG |
| SUN ANGLE AT NADIR | = | 72.1095257 | DEG | SUN ARC AT NADIR | = | 2187.4708557 | KM |
| LONGITUDE DISTANCE TO TARGET | = | 0.3881795 | DEG | LATITUDE DISTANCE TO TARGET | = | 0.0095131 | DEG |
| LONGITUDE ARC LENGTH TO TARGET | = | 11.7755790 | KM | LATITUDE ARC LENGTH TO TARGET | = | 0.2885846 | KM |
| FORWARD OVERLAP RATIO | = | 5.9307708 | PCT | SIDE OVERLAP RATIO | = | 0. | PCT |
| TIME BETWEEN PHOTOS | = | 1.9999087 | SEC | ALPHA | = | -0.2457037 | DEG. |

| DIRECTION COSINES TO TARGET | X | Y | Z | MAGNITUDE (KM) |
|---|---|---|---|---|
| CAMERA AXIS | -0.99646240 | 0.08368651 | 0.00769740 | 46.57461309 |
| C1 | -0.94149588 | 0.33677902 | 0.01286084 | 45.02127075 |
| C2 | -0.88862135 | 0.42929530 | 0.16142381 | 45.81690979 |
| C3 | -0.93538360 | 0.31114946 | -0.16805819 | 45.81553650 |
| C4 | -0.96290004 | 0.23300558 | -0.13613200 | 45.79679871 |
| | -0.91613779 | 0.35115142 | 0.19334999 | 45.79817200 |

| | X | Y | Z | X DOT | Y DOT | Z DOT |
|---|---|---|---|---|---|---|
| STATE VECTOR (1950.0) | -358.9661407 | -1603.6204376 | -692.1192093 | 1.7666200 | -0.0724704 | -0.7414210 |

LONG -18.7423 DEG
LATI -0.4441 DEG

LONG -19.1783 DEG
LATI -1.5759 DEG

(1) • 36.79203 KM • (2)

LOW RESOLUTION

31.04967 KM 31.04756 KM

(4) • 36.67689 KM • (3)

LONG -19.6981 DEG
LATI -0.0779 DEG

LONG -20.1329 DEG
LATI -1.2060 DEG

LONG -19.2802 DEG
LATI -0.6010 DEG

LONG -19.4720 DEG
LATI -1.0987 DEG

(1) • 16.17926 KM • (2)

HIGH RESOLUTION

4.06710 KM 4.06698 KM

(4) • 16.17264 KM • (3)

LONG -19.4053 DEG
LATI -0.5529 DEG

LONG -19.5971 DEG
LATI -1.0504 DEG

LOW RESOLUTION 130

| INDEX | LONGITUDE | LATITUDE |
|---|---|---|
| 1 | -18.7422504 | -0.4440946 |
| 2 | -18.7854822 | -0.5551996 |
| 3 | -18.8266134 | -0.6611256 |
| 4 | -18.8661876 | -0.7632557 |
| 5 | -18.9046860 | -0.8627938 |
| 6 | -18.9425251 | -0.9608275 |
| 7 | -18.9801118 | -1.0583830 |
| 8 | -19.0178280 | -1.1564637 |
| 9 | -19.0560703 | -1.2560965 |
| 10 | -19.0952482 | -1.3583735 |
| 11 | -19.1358230 | -1.4645061 |
| 12 | -19.1783171 | -1.5758851 |
| 13 | -19.2703538 | -1.5398909 |
| 14 | -19.3592079 | -1.5052106 |
| 15 | -19.4456780 | -1.4715241 |
| 16 | -19.5304918 | -1.4385445 |
| 17 | -19.6143222 | -1.4060055 |
| 18 | -19.6978139 | -1.3736603 |
| 19 | -19.7815866 | -1.3412630 |
| 20 | -19.8662913 | -1.3085669 |
| 21 | -19.9525874 | -1.2753184 |
| 22 | -20.0412021 | -1.2412426 |
| 23 | -20.1329281 | -1.2060406 |
| 24 | -20.0898125 | -1.0953070 |
| 25 | -20.0487905 | -0.9897303 |
| 26 | -20.0093222 | -0.8879340 |
| 27 | -19.9709299 | -0.7887186 |
| 28 | -19.9331896 | -0.6909991 |
| 29 | -19.8957088 | -0.5937543 |
| 30 | -19.8580949 | -0.4959844 |
| 31 | -19.8199620 | -0.3966658 |
| 32 | -19.7808933 | -0.2947081 |
| 33 | -19.7404313 | -0.1889060 |
| 34 | -19.6980636 | -0.0778727 |
| 35 | -19.6064503 | -0.1133325 |
| 36 | -19.5179005 | -0.1475355 |
| 37 | -19.4316180 | -0.1807934 |
| 38 | -19.3468928 | -0.2133871 |
| 39 | -19.2630525 | -0.2455752 |
| 40 | -19.1794610 | -0.2776045 |
| 41 | -19.0954874 | -0.3097183 |
| 42 | -19.0104823 | -0.3421583 |
| 43 | -18.9237764 | -0.3751814 |
| 44 | -18.8346355 | -0.4090600 |

HIGH RESOLUTION 130

| INDEX | LONGITUDE | LATITUDE |
|---|---|---|
| 1 | -19.2801962 | -0.6009935 |
| 2 | -19.2979274 | -0.6469803 |
| 3 | -19.3154809 | -0.6925154 |
| 4 | -19.3329012 | -0.7377065 |
| 5 | -19.3502262 | -0.7826517 |
| 6 | -19.3674927 | -0.8274509 |
| 7 | -19.3847356 | -0.8722023 |
| 8 | -19.4019990 | -0.9170041 |
| 9 | -19.4193168 | -0.9619510 |
| 10 | -19.4367270 | -1.0071438 |
| 11 | -19.4542704 | -1.0526832 |
| 12 | -19.4719844 | -1.0986735 |
| 13 | -19.4833703 | -1.0942740 |
| 14 | -19.4947495 | -1.0898762 |
| 15 | -19.5061216 | -1.0854827 |
| 16 | -19.5174906 | -1.0810909 |
| 17 | -19.5288527 | -1.0767016 |
| 18 | -19.5402181 | -1.0723132 |
| 19 | -19.5515800 | -1.0679240 |
| 20 | -19.5629454 | -1.0635364 |
| 21 | -19.5743144 | -1.0591463 |
| 22 | -19.5856867 | -1.0547554 |
| 23 | -19.5970657 | -1.0503627 |
| 24 | -19.5793414 | -1.0043989 |
| 25 | -19.5617912 | -0.9588834 |
| 26 | -19.5443776 | -0.9137137 |
| 27 | -19.5270562 | -0.8687881 |
| 28 | -19.5097964 | -0.8240077 |
| 29 | -19.4925570 | -0.7792751 |
| 30 | -19.4753006 | -0.7344912 |
| 31 | -19.4579928 | -0.6895631 |
| 32 | -19.4405861 | -0.6443865 |
| 33 | -19.4230530 | -0.5988650 |
| 34 | -19.4053457 | -0.5528910 |
| 35 | -19.3939631 | -0.5572700 |
| 36 | -19.3825841 | -0.5616456 |
| 37 | -19.3712118 | -0.5660178 |
| 38 | -19.3598397 | -0.5703891 |
| 39 | -19.3484707 | -0.5747596 |
| 40 | -19.3371019 | -0.5791300 |
| 41 | -19.3257329 | -0.5834996 |
| 42 | -19.3143539 | -0.5878710 |
| 43 | -19.3029783 | -0.5922431 |
| 44 | -19.2915888 | -0.5966170 |

**********
* PHOTO FRAME NUMBER 8 OF 8 *
**********

## FRAME 131

| GMT | YEAR | MONTH | DAY | HOUR | MINUTE | SECOND |
|---|---|---|---|---|---|---|
| | 67 | 2 | 20 | 4 | 44 | 46.400 |

| | | | | | |
|---|---|---|---|---|---|
| LONGITUDE OF NADIR POINT | = | -19.3301430 | DEG | LATITUDE OF NADIR POINT | = -0.8677986 DEG |
| LONG OF CAMERA AXIS INTERSECT | = | -19.3210032 | DEG | LATI OF CAMERA AXIS INTERSECT | = -0.8711889 DEG |
| SPACECRAFT RADIUS | = | 1783.1064758 | KM | SPACECRAFT ALTITUDE | = 45.0164795 KM |
| MEAN ALTITUDE RATE | = | -0.0016479 | KM/SEC | TIME FROM PERIAPSIS | = -3.1715896 SEC |
| HORIZONTAL VELOCITY | = | 1.9172673 | KM/SEC | TRUE ANOMALY | = 359.8045959 DEG |
| SCALE FACTOR (HIGH) | = | 0.0135503 | M/KM | TILT DISTANCE (HIGH) | = 4.0051715 MM |
| SCALE FACTOR (LOW) | = | 0.0017771 | M/KM | TILT DISTANCE (LOW) | = 0.5252684 MM |
| IMAGE MOTION COMPENSATION (V/H) | = | 0.0425882 | RAD/SEC | SWING ANGLE | = 269.2955208 DEG |
| EMISSION ANGLE | = | 0.3859465 | DEG | INCIDENCE ANGLE | = 71.9844389 DEG |
| PHASE ANGLE | = | 72.3490067 | DEG | NORTH DEVIATION ANGLE | = 338.9288330 DEG |
| TILT ANGLE | = | 0.3761904 | DEG | RESOLUTION CONSTANT | = 0.9768791 MTR |
| TILT AZIMUTH | = | 110.3669500 | DEG | SUN AZIMUTH AT PRINCIPAL GND PT | = 91.2426186 DEG |
| SUN ANGLE AT NADIR | = | 71.9936419 | DEG | SUN ARC AT NADIR | = 2183.9554443 KM |
| LONGITUDE DISTANCE TO TARGET | = | 0.5028570 | DEG | LATITUDE DISTANCE TO TARGET | = -0.0347986 DEG |
| LONGITUDE ARC LENGTH TO TARGET | = | 15.2543640 | KM | LATITUDE ARC LENGTH TO TARGET | = -1.0556285 KM |
| FORWARD OVERLAP RATIO | = | 5.9202850 | PCT | SIDE OVERLAP RATIO | = 0. PCT |
| TIME BETWEEN PHOTOS | = | 2.0000696 | SEC | ALPHA | = -0.3646138 DEG. |

| DIRECTION COSINES TO TARGET | X | Y | Z | MAGNITUDE (KM) |
|---|---|---|---|---|
| CAMERA AXIS | -0.99927342 | 0.01099238 | 0.03649381 | 47.60572577 |
| C1 | -0.94149423 | 0.33678363 | 0.01286092 | 45.01747131 |
| C2 | -0.88861924 | 0.42929964 | 0.16142388 | 45.81761169 |
| C3 | -0.93538208 | 0.31115405 | -0.16805812 | 45.81625366 |
| C4 | -0.96289890 | 0.23301031 | -0.13613193 | 45.78837585 |
| | -0.91613607 | 0.35115589 | 0.19335007 | 45.78973389 |

| STATE VECTOR (1950.0) | X | Y | Z | X DOT | Y DOT | Z DOT |
|---|---|---|---|---|---|---|
| | -355.4322815 | -1603.7626038 | -693.6008530 | 1.7672383 | -0.0696967 | -0.7402214 |

LONG -18.6241 DEG
LATI -0.4893 DEG

LONG -19.0604 DEG
LATI -1.6219 DEG

(1) • 36.81707 KM • (2)

LOW RESOLUTION

31.04759 KM 31.04549 KM

(4) • 36.64586 KM • (3)

LONG -19.5802 DEG
LATI -0.1249 DEG

LONG -20.0147 DEG
LATI -1.2512 DEG

LONG -19.1625 DEG
LATI -0.6464 DEG

LONG -19.3543 DEG
LATI -1.1441 DEG

(1) • 16.17951 KM • (2)

HIGH RESOLUTION

4.06681 KM 4.06668 KM

(4) • 16.16967 KM • (3)

LONG -19.2877 DEG
LATI -0.5984 DEG

LONG -19.4794 DEG
LATI -1.0958 DEG

LOW RESOLUTION 131

| INDEX | LONGITUDE | LATITUDE |
|---|---|---|
| 1 | -18.6241121 | -0.4892755 |
| 2 | -18.6673710 | -0.6004564 |
| 3 | -18.7085297 | -0.7064567 |
| 4 | -18.7481279 | -0.8086560 |
| 5 | -18.7866502 | -0.9082632 |
| 6 | -18.8245132 | -1.0063652 |
| 7 | -18.8621202 | -1.1039882 |
| 8 | -18.8998604 | -1.2021372 |
| 9 | -18.9381199 | -1.3018392 |
| 10 | -18.9773216 | -1.4041870 |
| 11 | -19.0179203 | -1.5103939 |
| 12 | -19.0604348 | -1.6218531 |
| 13 | -19.1525707 | -1.5857308 |
| 14 | -19.2414861 | -1.5509370 |
| 15 | -19.3279972 | -1.5171489 |
| 16 | -19.4128249 | -1.4840797 |
| 17 | -19.4966447 | -1.4514630 |
| 18 | -19.5800996 | -1.4190469 |
| 19 | -19.6638205 | -1.3865864 |
| 20 | -19.7484431 | -1.3538365 |
| 21 | -19.8346367 | -1.3205419 |
| 22 | -19.9231184 | -1.2864294 |
| 23 | -20.0146806 | -1.2511976 |
| 24 | -19.9716060 | -1.1405571 |
| 25 | -19.9306247 | -1.0350673 |
| 26 | -19.8911908 | -0.9333547 |
| 27 | -19.8528323 | -0.8342222 |
| 28 | -19.8151298 | -0.7365847 |
| 29 | -19.7776833 | -0.6394210 |
| 30 | -19.7401001 | -0.5417322 |
| 31 | -19.7020013 | -0.4424964 |
| 32 | -19.6629634 | -0.3406258 |
| 33 | -19.6225424 | -0.2349124 |
| 34 | -19.5802054 | -0.1239730 |
| 35 | -19.4886980 | -0.1592971 |
| 36 | -19.4002163 | -0.1933772 |
| 37 | -19.3139818 | -0.2265249 |
| 38 | -19.2292771 | -0.2590204 |
| 39 | -19.1454365 | -0.2911189 |
| 40 | -19.0618179 | -0.3230679 |
| 41 | -18.9777963 | -0.3551084 |
| 42 | -18.8927228 | -0.3874852 |
| 43 | -18.8059180 | -0.4204511 |
| 44 | -18.7166543 | -0.4542801 |

HIGH RESOLUTION 131

| INDEX | LONGITUDE | LATITUDE |
|---|---|---|
| 1 | -19.1625428 | -0.6464449 |
| 2 | -19.1802704 | -0.6924318 |
| 3 | -19.1978276 | -0.7379695 |
| 4 | -19.2152445 | -0.7831597 |
| 5 | -19.2325692 | -0.8281075 |
| 6 | -19.2498360 | -0.8729075 |
| 7 | -19.2670789 | -0.9176607 |
| 8 | -19.2843387 | -0.9624633 |
| 9 | -19.3016565 | -1.0074119 |
| 10 | -19.3190668 | -1.0526056 |
| 11 | -19.3366067 | -1.0981467 |
| 12 | -19.3543208 | -1.1441378 |
| 13 | -19.3657067 | -1.1397332 |
| 14 | -19.3770823 | -1.1353328 |
| 15 | -19.3884547 | -1.1309350 |
| 16 | -19.3998201 | -1.1265389 |
| 17 | -19.4111855 | -1.1221446 |
| 18 | -19.4225440 | -1.1177519 |
| 19 | -19.4339061 | -1.1133592 |
| 20 | -19.4452682 | -1.1089674 |
| 21 | -19.4566336 | -1.1045748 |
| 22 | -19.4680023 | -1.1001804 |
| 23 | -19.4793746 | -1.0957843 |
| 24 | -19.4616573 | -1.0498291 |
| 25 | -19.4441104 | -1.0043221 |
| 26 | -19.4267004 | -0.9591600 |
| 27 | -19.4093857 | -0.9142421 |
| 28 | -19.3921292 | -0.8694686 |
| 29 | -19.3748968 | -0.8247436 |
| 30 | -19.3576436 | -0.7799683 |
| 31 | -19.3403394 | -0.7350462 |
| 32 | -19.3229394 | -0.6898798 |
| 33 | -19.3054063 | -0.6443652 |
| 34 | -19.2877059 | -0.5983997 |
| 35 | -19.2763233 | -0.6027719 |
| 36 | -19.2649443 | -0.6071415 |
| 37 | -19.2535720 | -0.6115085 |
| 38 | -19.2421999 | -0.6158747 |
| 39 | -19.2308309 | -0.6202392 |
| 40 | -19.2194622 | -0.6246037 |
| 41 | -19.2080865 | -0.6289691 |
| 42 | -19.1967108 | -0.6333353 |
| 43 | -19.1853282 | -0.6377032 |
| 44 | -19.1739390 | -0.6420728 |

**********
* PHOTO FRAME NUMBER 1 OF 4 *
**********

## FRAME 132

| | YEAR | MONTH | DAY | HOUR | MINUTE | SECOND |
|---|---|---|---|---|---|---|
| GMT | 67 | 2 | 20 | 8 | 14 | 20.299 |

| | | | | | |
|---|---|---|---|---|---|
| LONGITUDE OF NADIR POINT | = | -17.5607452 | DEG | LATITUDE OF NADIR POINT | = -2.2968790 DEG |
| LONG OF CAMERA AXIS INTERSECT | = | -17.9360387 | DEG | LATI OF CAMERA AXIS INTERSECT | = -3.2197409 DEG |
| SPACECRAFT RADIUS | = | 1784.3740540 | KM | SPACECRAFT ALTITUDE | = 46.2840576 KM |
| MEAN ALTITUDE RATE | = | 0.0311460 | KM/SEC | TIME FROM PERIAPSIS | = 60.0539794 SEC |
| HORIZONTAL VELOCITY | = | 1.9159879 | KM/SEC | TRUE ANOMALY | = 3.6972231 DEG |
| SCALE FACTOR (HIGH) | = | 0.0109922 | M/KM | TILT DISTANCE (HIGH) | = 395.9749374 MM |
| SCALE FACTOR (LOW) | = | 0.0014416 | M/KM | TILT DISTANCE (LOW) | = 51.9311395 MM |
| IMAGE MOTION COMPENSATION (V/H) | = | 0.0345201 | RAD/SEC | SWING ANGLE | = 0.7471695 DEG |
| EMISSION ANGLE | = | 33.9852757 | DEG | INCIDENCE ANGLE | = 68.8011246 DEG |
| PHASE ANGLE | = | 60.4317608 | DEG | NORTH DEVIATION ANGLE | = 334.6371689 DEG |
| TILT ANGLE | = | 32.9891844 | DEG | RESOLUTION CONSTANT | = 1.2042146 MTR |
| TILT AZIMUTH | = | 202.0983086 | DEG | SUN AZIMUTH AT PRINCIPAL GND PT | = 90.3065748 DEG |
| SUN ANGLE AT NADIR | = | 68.4339685 | DEG | SUN ARC AT NADIR | = 2075.9713440 KM |
| LONGITUDE DISTANCE TO TARGET | = | -0.3307452 | DEG | LATITUDE DISTANCE TO TARGET | = 1.2231210 DEG |
| LONGITUDE ARC LENGTH TO TARGET | = | -10.0332863 | KM | LATITUDE ARC LENGTH TO TARGET | = 37.1038561 KM |
| FORWARD OVERLAP RATIO | = | 0. | PCT | SIDE OVERLAP RATIO | = 0. PCT |
| TIME BETWEEN PHOTOS | = | 0. | SEC | ALPHA | = 3.7730722 DEG. |

| | X | Y | Z | MAGNITUDE (KM) |
|---|---|---|---|---|
| DIRECTION COSINES TO TARGET | -0.70913170 | 0.39806677 | -0.58195797 | 60.48613977 |
| CAMERA AXIS | -0.88011946 | 0.06368244 | -0.47046178 | 55.49375916 |
| C1 | -0.84060983 | 0.48657703 | -0.23794521 | 49.43635559 |
| C2 | -0.55555803 | 0.16797066 | -0.81433477 | 87.39010620 |
| C3 | -0.71327217 | -0.37414327 | -0.59267161 | 88.15227509 |
| C4 | -0.99832387 | -0.05553702 | -0.01628224 | 49.67137146 |

| | X | Y | Z | X DOT | Y DOT | Z DOT |
|---|---|---|---|---|---|---|
| STATE VECTOR (1950.0) | -241.5941982 | -1605.5001984 | -740.2649307 | 1.7834643 | 0.0209408 | -0.7005954 |

LONG -17.2177 DEG
LATI -2.7462 DEG

LONG -17.5824 DEG
LATI -4.7086 DEG

(1) * 60.54229 KM * (2)

LOW RESOLUTION

30.05744 KM 53.24206 KM

(4) * 61.12065 KM * (3)

LONG -18.1412 DEG
LATI -2.3848 DEG

LONG -19.2271 DEG
LATI -4.0831 DEG

LONG -17.7378 DEG
LATI -2.9182 DEG

LONG -18.0143 DEG
LATI -3.6746 DEG

(1) * 24.42665 KM * (2)

HIGH RESOLUTION

4.47325 KM 5.70816 KM

(4) * 24.45305 KM * (3)

LONG -17.8754 DEG
LATI -2.8646 DEG

LONG -18.1902 DEG
LATI -3.6069 DEG

LOW RESOLUTION 132

| INDEX | LONGITUDE | LATITUDE |
|---|---|---|
| 1 | -17.2176635 | -2.7462329 |
| 2 | -17.2391443 | -2.8591009 |
| 3 | -17.2614176 | -2.9764931 |
| 4 | -17.2847736 | -3.0999897 |
| 5 | -17.3095636 | -3.2314811 |
| 6 | -17.3362081 | -3.3733049 |
| 7 | -17.3652399 | -3.5284321 |
| 8 | -17.3973589 | -3.7007680 |
| 9 | -17.4334941 | -3.8955966 |
| 10 | -17.4749532 | -4.1203312 |
| 11 | -17.5236185 | -4.3858061 |
| 12 | -17.5823512 | -4.7086436 |
| 13 | -17.7388854 | -4.6454250 |
| 14 | -17.8901298 | -4.5850871 |
| 15 | -18.0375321 | -4.5269836 |
| 16 | -18.1824038 | -4.4705517 |
| 17 | -18.3259606 | -4.4152877 |
| 18 | -18.4693673 | -4.3607308 |
| 19 | -18.6137950 | -4.3064393 |
| 20 | -18.7604358 | -4.2519814 |
| 21 | -18.9105737 | -4.1969224 |
| 22 | -19.0656087 | -4.1408021 |
| 23 | -19.2271359 | -4.0831246 |
| 24 | -19.0464499 | -3.8037639 |
| 25 | -18.8984945 | -3.5740518 |
| 26 | -18.7736762 | -3.3795878 |
| 27 | -18.6657763 | -3.2109940 |
| 28 | -18.5705736 | -3.0618551 |
| 29 | -18.4850631 | -2.9275966 |
| 30 | -18.4070385 | -2.8048444 |
| 31 | -18.3348262 | -2.6910245 |
| 32 | -18.2671151 | -2.5841166 |
| 33 | -18.2028499 | -2.4824843 |
| 34 | -18.1411529 | -2.3847605 |
| 35 | -18.0518651 | -2.4195876 |
| 36 | -17.9657125 | -2.4532178 |
| 37 | -17.8819129 | -2.4859532 |
| 38 | -17.7997594 | -2.5180653 |
| 39 | -17.7186067 | -2.5498103 |
| 40 | -17.6378293 | -2.5814290 |
| 41 | -17.5568233 | -2.6131586 |
| 42 | -17.4749703 | -2.6452409 |
| 43 | -17.3916318 | -2.6779284 |
| 44 | -17.3061144 | -2.7114920 |

HIGH RESOLUTION 132

| INDEX | LONGITUDE | LATITUDE |
|---|---|---|
| 1 | -17.7378130 | -2.9181744 |
| 2 | -17.7581670 | -2.9738643 |
| 3 | -17.7791631 | -3.0313147 |
| 4 | -17.8008831 | -3.0907442 |
| 5 | -17.8234158 | -3.1523978 |
| 6 | -17.8468640 | -3.2165469 |
| 7 | -17.8713331 | -3.2835024 |
| 8 | -17.8969600 | -3.3536134 |
| 9 | -17.9238880 | -3.4272796 |
| 10 | -17.9522810 | -3.5049644 |
| 11 | -17.9823406 | -3.5872025 |
| 12 | -18.0142958 | -3.6746144 |
| 13 | -18.0302851 | -3.6684339 |
| 14 | -18.0462644 | -3.6622594 |
| 15 | -18.0622437 | -3.6560926 |
| 16 | -18.0782194 | -3.6499318 |
| 17 | -18.0941954 | -3.6437744 |
| 18 | -18.1101744 | -3.6376204 |
| 19 | -18.1261606 | -3.6314707 |
| 20 | -18.1421535 | -3.6253226 |
| 21 | -18.1581600 | -3.6191755 |
| 22 | -18.1741734 | -3.6130283 |
| 23 | -18.1902072 | -3.6068811 |
| 24 | -18.1537683 | -3.5211042 |
| 25 | -18.1195011 | -3.4404072 |
| 26 | -18.0871465 | -3.3641772 |
| 27 | -18.0564721 | -3.2918881 |
| 28 | -18.0272901 | -3.2230902 |
| 29 | -17.9994297 | -3.1573872 |
| 30 | -17.9727442 | -3.0944376 |
| 31 | -17.9471037 | -3.0339375 |
| 32 | -17.9223921 | -2.9756188 |
| 33 | -17.8985138 | -2.9192433 |
| 34 | -17.8753698 | -2.8645949 |
| 35 | -17.8628430 | -2.8694691 |
| 36 | -17.8503234 | -2.8743391 |
| 37 | -17.8378139 | -2.8792081 |
| 38 | -17.8253112 | -2.8840772 |
| 39 | -17.8128121 | -2.8889429 |
| 40 | -17.8003161 | -2.8938111 |
| 41 | -17.7878203 | -2.8986793 |
| 42 | -17.7753246 | -2.9035492 |
| 43 | -17.7628253 | -2.9084209 |
| 44 | -17.7503226 | -2.9132968 |

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* PHOTO FRAME NUMBER 2 OF 4 *
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## FRAME 133

| GMT | YEAR | MONTH | DAY | HOUR | MINUTE | SECOND |
|---|---|---|---|---|---|---|
| | 67 | 2 | 20 | 8 | 14 | 29.700 |

| | | | | | | |
|---|---|---|---|---|---|---|
| LONGITUDE OF NADIR POINT | = | -17.0217667 | DEG | LATITUDE OF NADIR POINT | = | -2.5039140 DEG |
| LONG OF CAMERA AXIS INTERSECT | = | -17.3847401 | DEG | LATI OF CAMERA AXIS INTERSECT | = | -3.4387628 DEG |
| SPACECRAFT RADIUS | = | 1784.6896973 | KM | SPACECRAFT ALTITUDE | = | 46.5997009 KM |
| MEAN ALTITUDE RATE | = | 0.0360065 | KM/SEC | TIME FROM PERIAPSIS | = | 69.4502525 SEC |
| HORIZONTAL VELOCITY | = | 1.9156491 | KM/SEC | TRUE ANOMALY | = | 4.2751979 DEG |
| SCALE FACTOR (HIGH) | = | 0.0109182 | M/KM | TILT DISTANCE (HIGH) | = | 395.8740692 MM |
| SCALE FACTOR (LOW) | = | 0.0014319 | M/KM | TILT DISTANCE (LOW) | = | 51.9179111 MM |
| IMAGE MOTION COMPENSATION (V/H) | = | 0.0342882 | RAD/SEC | SWING ANGLE | = | 359.6852570 DEG |
| EMISSION ANGLE | = | 33.9851842 | DEG | INCIDENCE ANGLE | = | 68.2484922 DEG |
| PHASE ANGLE | = | 60.4317641 | DEG | NORTH DEVIATION ANGLE | = | 334.6117477 DEG |
| TILT ANGLE | = | 32.9825177 | DEG | RESOLUTION CONSTANT | = | 1.2123792 MTR |
| TILT AZIMUTH | = | 201.1849422 | DEG | SUN AZIMUTH AT PRINCIPAL GND PT | = | 90.1892548 DEG |
| SUN ANGLE AT NADIR | = | 67.8920069 | DEG | SUN ARC AT NADIR | = | 2059.5307312 KM |
| LONGITUDE DISTANCE TO TARGET | = | 0.2082334 | DEG | LATITUDE DISTANCE TO TARGET | = | 1.0160860 DEG |
| LONGITUDE ARC LENGTH TO TARGET | = | 6.3168408 | KM | LATITUDE ARC LENGTH TO TARGET | = | 30.8233688 KM |
| FORWARD OVERLAP RATIO | = | 52.9424386 | PCT | SIDE OVERLAP RATIO | = | 0. PCT |
| TIME BETWEEN PHOTOS | = | 9.4000697 | SEC | ALPHA | = | 3.0625721 DEG. |

| DIRECTION COSINES TO TARGET | X | Y | Z | MAGNITUDE (KM) |
|---|---|---|---|---|
| CAMERA AXIS | -0.84873776 | 0.14304951 | -0.50909827 | 56.46160555 |
| C1 | -0.88011810 | 0.06370289 | -0.47046154 | 55.87001038 |
| C2 | -0.84059866 | 0.48659649 | -0.23794486 | 49.94015503 |
| C3 | -0.55555436 | 0.16798372 | -0.81433460 | 88.53730774 |
| C4 | -0.71328094 | -0.37412664 | -0.59267154 | 88.21386719 |
| | -0.99832515 | -0.05551398 | -0.01628200 | 49.84048462 |

| | X | Y | Z | X DOT | Y DOT | Z DOT |
|---|---|---|---|---|---|---|
| STATE VECTOR (1950.0) | -224.8188400 | -1605.2505798 | -746.8228912 | 1.7853580 | 0.0330603 | -0.6945590 |

LONG -16.6604 DEG
LATI -2.9633 DEG

LONG -17.0276 DEG
LATI -4.9531 DEG

(1) * 61.37427 KM * (2)

LOW RESOLUTION

30.26083 KM 53.60458 KM

(4) * 61.12879 KM * (3)

LONG -17.5897 DEG
LATI -2.5979 DEG

LONG -18.6741 DEG
LATI -4.2977 DEG

LONG -17.1854 DEG
LATI -3.1354 DEG

LONG -17.4636 DEG
LATI -3.8977 DEG

(1) * 24.61200 KM * (2)

HIGH RESOLUTION

4.50346 KM 5.74671 KM

(4) * 24.60078 KM * (3)

LONG -17.3237 DEG
LATI -3.0809 DEG

LONG -17.6401 DEG
LATI -3.8278 DEG

HIGH RESOLUTION 133

| INDEX | LONGITUDE | LATITUDE |
|---|---|---|
| 1 | -17.1853805 | -3.1353692 |
| 2 | -17.2058575 | -3.1914818 |
| 3 | -17.2269833 | -3.2493702 |
| 4 | -17.2488399 | -3.3092548 |
| 5 | -17.2715092 | -3.3713830 |
| 6 | -17.2951007 | -3.4360290 |
| 7 | -17.3197236 | -3.5035045 |
| 8 | -17.3455076 | -3.5741628 |
| 9 | -17.3726029 | -3.6484078 |
| 10 | -17.4011736 | -3.7267057 |
| 11 | -17.4314210 | -3.8095977 |
| 12 | -17.4635742 | -3.8977114 |
| 13 | -17.4796319 | -3.8913277 |
| 14 | -17.4956830 | -3.8849518 |
| 15 | -17.5117235 | -3.8785843 |
| 16 | -17.5277610 | -3.8722246 |
| 17 | -17.5437913 | -3.8658699 |
| 18 | -17.5598218 | -3.8595221 |
| 19 | -17.5758557 | -3.8531786 |
| 20 | -17.5918930 | -3.8468376 |
| 21 | -17.6079371 | -3.8405001 |
| 22 | -17.6239915 | -3.8341642 |
| 23 | -17.6400526 | -3.8278283 |
| 24 | -17.6034427 | -3.7415178 |
| 25 | -17.5690153 | -3.6603162 |
| 26 | -17.5365036 | -3.5836107 |
| 27 | -17.5056822 | -3.5108691 |
| 28 | -17.4763570 | -3.4416392 |
| 29 | -17.4483564 | -3.3755230 |
| 30 | -17.4215412 | -3.3121764 |
| 31 | -17.3957708 | -3.2512946 |
| 32 | -17.3709364 | -3.1926062 |
| 33 | -17.3469384 | -3.1358721 |
| 34 | -17.3236749 | -3.0808763 |
| 35 | -17.3110902 | -3.0858290 |
| 36 | -17.2985125 | -3.0907792 |
| 37 | -17.2859449 | -3.0957285 |
| 38 | -17.2733774 | -3.1006770 |
| 39 | -17.2608132 | -3.1056263 |
| 40 | -17.2482491 | -3.1105765 |
| 41 | -17.2356849 | -3.1155293 |
| 42 | -17.2231174 | -3.1204837 |
| 43 | -17.2105465 | -3.1254407 |
| 44 | -17.1979687 | -3.1304029 |

LOW RESOLUTION 133

| INDEX | LONGITUDE | LATITUDE |
|---|---|---|
| 1 | -16.6603985 | -2.9632698 |
| 2 | -16.6819956 | -3.0773844 |
| 3 | -16.7043917 | -3.1961101 |
| 4 | -16.7278643 | -3.3210514 |
| 5 | -16.7528248 | -3.4541308 |
| 6 | -16.7796297 | -3.5977261 |
| 7 | -16.8088493 | -3.7548623 |
| 8 | -16.8411801 | -3.9295205 |
| 9 | -16.8775713 | -4.1270965 |
| 10 | -16.9193380 | -4.3551659 |
| 11 | -16.9683924 | -4.6248226 |
| 12 | -17.0276306 | -4.9531250 |
| 13 | -17.1861181 | -4.8862455 |
| 14 | -17.3388789 | -4.8225549 |
| 15 | -17.4874184 | -4.7613496 |
| 16 | -17.6330791 | -4.7020225 |
| 17 | -17.7771003 | -4.6440342 |
| 18 | -17.9206572 | -4.5868920 |
| 19 | -18.0649245 | -4.5301323 |
| 20 | -18.2110837 | -4.4733008 |
| 21 | -18.3603950 | -4.4159418 |
| 22 | -18.5142212 | -4.3575846 |
| 23 | -18.6741056 | -4.2977189 |
| 24 | -18.4941370 | -4.0187594 |
| 25 | -18.3466356 | -3.7891780 |
| 26 | -18.2221007 | -3.5946892 |
| 27 | -18.1143785 | -3.4259742 |
| 28 | -18.0192783 | -3.2766534 |
| 29 | -17.9338157 | -3.1421721 |
| 30 | -17.8558047 | -3.0191664 |
| 31 | -17.7835720 | -2.9050715 |
| 32 | -17.7158198 | -2.7978683 |
| 33 | -17.6514931 | -2.6959234 |
| 34 | -17.5897176 | -2.5978692 |
| 35 | -17.5004196 | -2.6328611 |
| 36 | -17.4141440 | -2.6666928 |
| 37 | -17.3301225 | -2.6996638 |
| 38 | -17.2476513 | -2.7320491 |
| 39 | -17.1660819 | -2.7640998 |
| 40 | -17.0847957 | -2.7960617 |
| 41 | -17.0031819 | -2.8281738 |
| 42 | -16.9206152 | -2.8606821 |
| 43 | -16.8364432 | -2.8938427 |
| 44 | -16.7499628 | -2.9279364 |

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* PHOTO FRAME NUMBER 3 OF 4 *
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## FRAME 134

| | YEAR | MONTH | DAY | HOUR | MINUTE | SECOND |
|---|---|---|---|---|---|---|
| GMT | 67 | 2 | 20 | 8 | 14 | 38.600 |

| | | | | | |
|---|---|---|---|---|---|
| LONGITUDE OF NADIR POINT | = | -16.5116005 | DEG | LATITUDE OF NADIR POINT | = -2.6996160 DEG |
| LONG OF CAMERA AXIS INTERSECT | = | -16.8630469 | DEG | LATI OF CAMERA AXIS INTERSECT | = -3.6468258 DEG |
| SPACECRAFT RADIUS | = | 1785.0305939 | KM | SPACECRAFT ALTITUDE | = 46.9405975 KM |
| MEAN ALTITUDE RATE | = | 0.0406025 | KM/SEC | TIME FROM PERIAPSIS | = 78.3448763 SEC |
| HORIZONTAL VELOCITY | = | 1.9152834 | KM/SEC | TRUE ANOMALY | = 4.8221152 DEG |
| SCALE FACTOR (HIGH) | = | 0.0108382 | M/KM | TILT DISTANCE (HIGH) | = 395.9038353 MM |
| SCALE FACTOR (LOW) | = | 0.0014214 | M/KM | TILT DISTANCE (LOW) | = 51.9218144 MM |
| IMAGE MOTION COMPENSATION (V/H) | = | 0.0340351 | RAD/SEC | SWING ANGLE | = 358.6803284 DEG |
| EMISSION ANGLE | = | 33.9946055 | DEG | INCIDENCE ANGLE | = 67.7260742 DEG |
| PHASE ANGLE | = | 60.4317675 | DEG | NORTH DEVIATION ANGLE | = 334.5918732 DEG |
| TILT ANGLE | = | 32.9844851 | DEG | RESOLUTION CONSTANT | = 1.2213279 MTR |
| TILT AZIMUTH | = | 200.3187408 | DEG | SUN AZIMUTH AT PRINCIPAL GND PT | = 90.0733051 DEG |
| SUN ANGLE AT NADIR | = | 67.3794403 | DEG | SUN ARC AT NADIR | = 2043.9818420 KM |
| LONGITUDE DISTANCE TO TARGET | = | 0.7183595 | DEG | LATITUDE DISTANCE TO TARGET | = 0.8203840 DEG |
| LONGITUDE ARC LENGTH TO TARGET | = | 21.7929320 | KM | LATITUDE ARC LENGTH TO TARGET | = 24.8866720 KM |
| FORWARD OVERLAP RATIO | = | 55.7281995 | PCT | SIDE OVERLAP RATIO | = 0. PCT |
| TIME BETWEEN PHOTOS | = | 8.9002132 | SEC | ALPHA | = 2.3891949 DEG. |

| | X | Y | Z | MAGNITUDE (KM) |
|---|---|---|---|---|
| DIRECTION COSINES TO TARGET | -0.91143451 | -0.12321655 | -0.39256185 | 57.66957617 |
| CAMERA AXIS | -0.88011682 | 0.06372228 | -0.47046132 | 56.28239441 |
| C1 | -0.84058806 | 0.48661494 | -0.23794454 | 50.47044373 |
| C2 | -0.55555087 | 0.16799611 | -0.81433441 | 89.72983551 |
| C3 | -0.71328927 | -0.37411087 | -0.59267148 | 88.36257935 |
| C4 | -0.99832637 | -0.05549213 | -0.01628179 | 50.04931641 |

| | X | Y | Z | X DOT | Y DOT | Z DOT |
|---|---|---|---|---|---|---|
| STATE VECTOR (1950.0) | -208.9234295 | -1604.9015808 | -752.9781799 | 1.7870243 | 0.0453753 | -0.6887993 |

LONG -16.1323 DEG
LATI -3.1690 DEG

LONG -16.5022 DEG
LATI -5.1873 DEG

* 62.23773 KM *
(1) (2)

LOW RESOLUTION

30.48748 KM 54.02617 KM

(4) (3)
* 61.19999 KM *

LONG -17.0682 DEG
LATI -2.7995 DEG

LONG -18.1522 DEG
LATI -4.5025 DEG

LONG -16.6624 DEG
LATI -3.3414 DEG

LONG -16.9425 DEG
LATI -4.1101 DEG

* 24.81290 KM *
(1) (2)

HIGH RESOLUTION

4.53709 KM 5.79016 KM

(4) (3)
* 24.76557 KM *

LONG -16.8016 DEG
LATI -3.2860 DEG

LONG -17.1197 DEG
LATI -4.0381 DEG

LOW RESOLUTION 134

| INDEX | LONGITUDE | LATITUDE |
|---|---|---|
| 1 | -16.1322680 | -3.1689951 |
| 2 | -16.1539879 | -3.2844142 |
| 3 | -16.1765206 | -3.4045351 |
| 4 | -16.2001565 | -3.5309866 |
| 5 | -16.2252507 | -3.6657223 |
| 6 | -16.2522333 | -3.8111593 |
| 7 | -16.2816474 | -3.9703855 |
| 8 | -16.3142035 | -4.1474556 |
| 9 | -16.3508577 | -4.3478772 |
| 10 | -16.3929455 | -4.5793984 |
| 11 | -16.4423995 | -4.8533778 |
| 12 | -16.5021636 | -5.1873245 |
| 13 | -16.6627071 | -5.1167883 |
| 14 | -16.8170967 | -5.0497611 |
| 15 | -16.9668896 | -4.9854797 |
| 16 | -17.1134620 | -4.9232899 |
| 17 | -17.2580845 | -4.8626165 |
| 18 | -17.4019454 | -4.8029351 |
| 19 | -17.5462193 | -4.7437567 |
| 20 | -17.6920850 | -4.6846064 |
| 21 | -17.8407850 | -4.6250113 |
| 22 | -17.9936514 | -4.5644838 |
| 23 | -18.1521802 | -4.5024981 |
| 24 | -17.9726930 | -4.2236113 |
| 25 | -17.8254547 | -3.9939061 |
| 26 | -17.7010565 | -3.7991877 |
| 27 | -17.5933888 | -3.6301849 |
| 28 | -17.4982886 | -3.4805388 |
| 29 | -17.4127848 | -3.3457100 |
| 30 | -17.3347089 | -3.2223415 |
| 31 | -17.2623875 | -3.1078709 |
| 32 | -17.1945295 | -3.0002826 |
| 33 | -17.1300833 | -2.8979399 |
| 34 | -17.0681710 | -2.7994759 |
| 35 | -16.9787638 | -2.8346582 |
| 36 | -16.8922801 | -2.8687136 |
| 37 | -16.8079579 | -2.9019441 |
| 38 | -16.7250907 | -2.9346189 |
| 39 | -16.6430397 | -2.9669932 |
| 40 | -16.5611832 | -2.9993136 |
| 41 | -16.4788966 | -3.0318236 |
| 42 | -16.3955545 | -3.0647707 |
| 43 | -16.3104949 | -3.0984179 |
| 44 | -16.2230000 | -3.1330538 |

HIGH RESOLUTION 134

| INDEX | LONGITUDE | LATITUDE |
|---|---|---|
| 1 | -16.6624169 | -3.3413951 |
| 2 | -16.6830337 | -3.3979670 |
| 3 | -16.7042997 | -3.4563301 |
| 4 | -16.7262998 | -3.5167072 |
| 5 | -16.7491262 | -3.5793495 |
| 6 | -16.7728746 | -3.6445308 |
| 7 | -16.7976615 | -3.7125697 |
| 8 | -16.8236229 | -3.7838197 |
| 9 | -16.8508995 | -3.8586923 |
| 10 | -16.8796647 | -3.9376552 |
| 11 | -16.9101171 | -4.0212542 |
| 12 | -16.9424922 | -4.1101269 |
| 13 | -16.9586353 | -4.1035408 |
| 14 | -16.9747648 | -4.0969651 |
| 15 | -16.9908841 | -4.0903996 |
| 16 | -17.0069931 | -4.0838435 |
| 17 | -17.0230954 | -4.0772933 |
| 18 | -17.0391941 | -4.0707517 |
| 19 | -17.0552928 | -4.0642160 |
| 20 | -17.0713882 | -4.0576847 |
| 21 | -17.0874870 | -4.0511576 |
| 22 | -17.1035924 | -4.0446348 |
| 23 | -17.1197050 | -4.0381119 |
| 24 | -17.0828969 | -3.9512055 |
| 25 | -17.0482817 | -3.8694447 |
| 26 | -17.0155923 | -3.7922072 |
| 27 | -16.9846003 | -3.7189628 |
| 28 | -16.9551110 | -3.6492522 |
| 29 | -16.9269569 | -3.5826775 |
| 30 | -16.8999913 | -3.5188904 |
| 31 | -16.8740742 | -3.4575834 |
| 32 | -16.8490996 | -3.3984869 |
| 33 | -16.8249617 | -3.3413567 |
| 34 | -16.8015649 | -3.2859758 |
| 35 | -16.7889154 | -3.2910079 |
| 36 | -16.7762728 | -3.2960392 |
| 37 | -16.7636302 | -3.3010696 |
| 38 | -16.7509909 | -3.3061009 |
| 39 | -16.7383516 | -3.3111339 |
| 40 | -16.7257087 | -3.3161686 |
| 41 | -16.7130628 | -3.3212059 |
| 42 | -16.7004166 | -3.3262466 |
| 43 | -16.6877568 | -3.3312907 |
| 44 | -16.6750937 | -3.3363399 |

**********
* PHOTO FRAME NUMBER 4 OF 4 *
**********

## FRAME 135

| | YEAR | MONTH | DAY | HOUR | MINUTE | SECOND |
|---|---|---|---|---|---|---|
| GMT | 67 | 2 | 20 | 8 | 14 | 48.600 |

| | | | | | |
|---|---|---|---|---|---|
| LONGITUDE OF NADIR POINT | = | -15.9383736 | DEG | LATITUDE OF NADIR POINT | = -2.9191767 DEG |
| LONG OF CAMERA AXIS INTERSECT | = | -16.2769687 | DEG | LATI OF CAMERA AXIS INTERSECT | = -3.8814752 DEG |
| SPACECRAFT RADIUS | = | 1785.4624023 | KM | SPACECRAFT ALTITUDE | = 47.3724060 KM |
| MEAN ALTITUDE RATE | = | 0.0457604 | KM/SEC | TIME FROM PERIAPSIS | = 88.3401031 SEC |
| HORIZONTAL VELOCITY | = | 1.9148202 | KM/SEC | TRUE ANOMALY | = 5.4364399 DEG |
| SCALE FACTOR (HIGH) | = | 0.0107373 | M/KM | TILT DISTANCE (HIGH) | = 396.0824966 MM |
| SCALE FACTOR (LOW) | = | 0.0014082 | M/KM | TILT DISTANCE (LOW) | = 51.9452457 MM |
| IMAGE MOTION COMPENSATION (V/H) | = | 0.0337135 | RAD/SEC | SWING ANGLE | = 357.5519485 DEG |
| EMISSION ANGLE | = | 34.0162253 | DEG | INCIDENCE ANGLE | = 67.1398315 DEG |
| PHASE ANGLE | = | 60.4317703 | DEG | NORTH DEVIATION ANGLE | = 334.5744896 DEG |
| TILT ANGLE | = | 32.9962912 | DEG | RESOLUTION CONSTANT | = 1.2327998 MTR |
| TILT AZIMUTH | = | 199.3441143 | DEG | SUN AZIMUTH AT PRINCIPAL GND PT | = 69.9372387 DEG |
| SUN ANGLE AT NADIR | = | 66.8040247 | DEG | SUN ARC AT NADIR | = 2026.5263824 KM |
| LONGITUDE DISTANCE TO TARGET | = | 1.2916265 | DEG | LATITUDE DISTANCE TO TARGET | = 0.6008233 DEG |
| LONGITUDE ARC LENGTH TO TARGET | = | 39.1819963 | KM | LATITUDE ARC LENGTH TO TARGET | = 18.2262115 KM |
| FORWARD OVERLAP RATIO | = | 50.6589184 | PCT | SIDE OVERLAP RATIO | = 0. PCT |
| TIME BETWEEN PHOTOS | = | 9.9997044 | SEC | ALPHA | = 1.6315663 DEG. |

| | X | Y | Z | MAGNITUDE (KM) |
|---|---|---|---|---|
| DIRECTION COSINES TO TARGET | -0.89392919 | -0.37544528 | -0.24480896 | 64.477911CC |
| CAMERA AXIS | -0.88011537 | 0.06374409 | -0.47046106 | 56.81105042 |
| C1 | -0.84057614 | 0.48663571 | -0.23794417 | 51.12899780 |
| C2 | -0.55554695 | 0.16801003 | -0.81433422 | 91.19651031 |
| C3 | -0.71329863 | -0.37409314 | -0.59267139 | 88.63258362 |
| C4 | -0.99832773 | -0.05546755 | -0.01628153 | 50.33996582 |

| | X | Y | Z | X DOT | Y DOT | Z DOT |
|---|---|---|---|---|---|---|
| STATE VECTOR (1950.0) | -191.0444279 | -1604.3786774 | -759.8335953 | 1.7887500 | 0.0592013 | -0.6822752 |

LONG -15.5380 DEG
LATI -3.4005 DEG

LONG -15.9112 DEG
LATI -5.4538 DEG

(1) * 63.29843 KM * (2)

LOW RESOLUTION

30.78189 KM 54.59184 KM

(4) * 61.35212 KM * (3)

LONG -16.4826 DEG
LATI -3.0259 DEG

LONG -17.5674 DEG
LATI -4.7345 DEG

LONG -16.0747 DEG
LATI -3.5734 DEG

LONG -16.3572 DEG
LATI -4.3502 DEG

(1) * 25.06833 KM * (2)

HIGH RESOLUTION

4.58077 KM 5.84710 KM

(4) * 24.97961 KM * (3)

LONG -16.2150 DEG
LATI -3.5169 DEG

LONG -16.5354 DEG
LATI -4.2757 DEG

LOW RESOLUTION 135

| INDEX | LONGITUDE | LATITUDE |
|---|---|---|
| 1 | -15.5380278 | -3.4004839 |
| 2 | -15.5599049 | -3.5175200 |
| 3 | -15.5826050 | -3.6393646 |
| 4 | -15.6064185 | -3.7676791 |
| 5 | -15.6317106 | -3.9044554 |
| 6 | -15.6589050 | -4.0521642 |
| 7 | -15.6885618 | -4.2139586 |
| 8 | -15.7213945 | -4.3939904 |
| 9 | -15.7583766 | -4.5979048 |
| 10 | -15.8008569 | -4.8336565 |
| 11 | -15.8507959 | -5.1129310 |
| 12 | -15.9111952 | -5.4537898 |
| 13 | -16.0743103 | -5.3789028 |
| 14 | -16.2307558 | -5.3079184 |
| 15 | -16.3821607 | -5.2400023 |
| 16 | -16.5299556 | -5.1744428 |
| 17 | -16.6754353 | -5.1106189 |
| 18 | -16.8198185 | -5.0479656 |
| 19 | -16.9642839 | -4.9859672 |
| 20 | -17.1100061 | -4.9241215 |
| 21 | -17.2582076 | -4.8619317 |
| 22 | -17.4101963 | -4.7988942 |
| 23 | -17.5674272 | -4.7344710 |
| 24 | -17.3882542 | -4.4553135 |
| 25 | -17.2411320 | -4.2251908 |
| 26 | -17.1167371 | -4.0299823 |
| 27 | -17.0090046 | -3.8604561 |
| 28 | -16.9137917 | -3.7102714 |
| 29 | -16.8281515 | -3.5748962 |
| 30 | -16.7499082 | -3.4509786 |
| 31 | -16.6774092 | -3.3359548 |
| 32 | -16.6093566 | -3.2278099 |
| 33 | -16.5446985 | -3.1249045 |
| 34 | -16.4825644 | -3.0258677 |
| 35 | -16.3929284 | -3.0613044 |
| 36 | -16.3061030 | -3.0956517 |
| 37 | -16.2213302 | -3.1292101 |
| 38 | -16.1379163 | -3.1622495 |
| 39 | -16.0552232 | -3.1950275 |
| 40 | -15.9726123 | -3.2277920 |
| 41 | -15.8894650 | -3.2607886 |
| 42 | -15.8051429 | -3.2942736 |
| 43 | -15.7189698 | -3.3285159 |
| 44 | -15.6302047 | -3.3638092 |

HIGH RESOLUTION 135

| INDEX | LONGITUDE | LATITUDE |
|---|---|---|
| 1 | -16.0746791 | -3.5733978 |
| 2 | -16.0954702 | -3.6305511 |
| 3 | -16.1169205 | -3.6895187 |
| 4 | -16.1391082 | -3.7505226 |
| 5 | -16.1621294 | -3.8138162 |
| 6 | -16.1860828 | -3.8796806 |
| 7 | -16.2110848 | -3.9484341 |
| 8 | -16.2372649 | -4.0204371 |
| 9 | -16.2647769 | -4.0961036 |
| 10 | -16.2937915 | -4.1759101 |
| 11 | -16.3245103 | -4.2604073 |
| 12 | -16.3571656 | -4.3502421 |
| 13 | -16.3734248 | -4.3434179 |
| 14 | -16.3896670 | -4.3366066 |
| 15 | -16.4058921 | -4.3298071 |
| 16 | -16.4221070 | -4.3230179 |
| 17 | -16.4383082 | -4.3162389 |
| 18 | -16.4545026 | -4.3094693 |
| 19 | -16.4706900 | -4.3027066 |
| 20 | -16.4868741 | -4.2959507 |
| 21 | -16.5030584 | -4.2892016 |
| 22 | -16.5192389 | -4.2824568 |
| 23 | -16.5354266 | -4.2757154 |
| 24 | -16.4983559 | -4.1880346 |
| 25 | -16.4634945 | -4.1055455 |
| 26 | -16.4305661 | -4.0276199 |
| 27 | -16.3993521 | -3.9537224 |
| 28 | -16.3696477 | -3.8833894 |
| 29 | -16.3412888 | -3.8162204 |
| 30 | -16.3141217 | -3.7518638 |
| 31 | -16.2880166 | -3.6900088 |
| 32 | -16.2628577 | -3.6303812 |
| 33 | -16.2385387 | -3.5727387 |
| 34 | -16.2149677 | -3.5168609 |
| 35 | -16.2022262 | -3.5219887 |
| 36 | -16.1894877 | -3.5271173 |
| 37 | -16.1767528 | -3.5322468 |
| 38 | -16.1640146 | -3.5373771 |
| 39 | -16.1512728 | -3.5425100 |
| 40 | -16.1385276 | -3.5476463 |
| 41 | -16.1257792 | -3.5527869 |
| 42 | -16.1130204 | -3.5579300 |
| 43 | -16.1002514 | -3.5630800 |
| 44 | -16.0874720 | -3.5682350 |

**********
* PHOTO FRAME NUMBER 1 OF 1 *
**********

## FRAME 136

| | YEAR | MONTH | DAY | HOUR | MINUTE | SECOND |
|---|---|---|---|---|---|---|
| GMT | 67 | 2 | 23 | 11 | 42 | 42.400 |

| | | | | | |
|---|---|---|---|---|---|
| LONGITUDE OF NADIR POINT | = | -19.9053535 | DEG | LATITUDE OF NADIR POINT | = -2.1404865 DEG |
| LONG OF CAMERA AXIS INTERSECT | = | -23.0758004 | DEG | LATI OF CAMERA AXIS INTERSECT | = -3.1184858 DEG |
| SPACECRAFT RADIUS | = | 1784.4756012 | KM | SPACECRAFT ALTITUDE | = 46.3856049 KM |
| MEAN ALTITUDE RATE | = | 0.0267215 | KM/SEC | TIME FROM PERIAPSIS | = 51.5501814 SEC |
| HORIZONTAL VELOCITY | = | 1.9159659 | KM/SEC | TRUE ANOMALY | = 3.1728855 DEG |
| SCALE FACTOR (HIGH) | = | 0.0054497 | M/KM | TILT DISTANCE (HIGH) | = 1243.6147614 MM |
| SCALE FACTOR (LOW) | = | 0.0007147 | M/KM | TILT DISTANCE (LOW) | = 163.0970192 MM |
| IMAGE MOTION COMPENSATION (V/H) | = | 0.0116394 | RAD/SEC | SWING ANGLE | = 13.5527140 DEG |
| EMISSION ANGLE | = | 67.1864328 | DEG | INCIDENCE ANGLE | = 72.1784344 DEG |
| PHASE ANGLE | = | 17.2308078 | DEG | NORTH DEVIATION ANGLE | = 290.3479843 DEG |
| TILT ANGLE | = | 63.8717904 | DEG | RESOLUTION CONSTANT | = 2.4289515 MTR |
| TILT AZIMUTH | = | 252.7710762 | DEG | SUN AZIMUTH AT PRINCIPAL GND PT | = 90.5188627 DEG |
| SUN ANGLE AT NADIR | = | 69.0220251 | DEG | SUN ARC AT NADIR | = 2093.8103027 KM |
| LONGITUDE DISTANCE TO TARGET | = | 3.3446465 | DEG | LATITUDE DISTANCE TO TARGET | = 0.9425135 DEG |
| LONGITUDE ARC LENGTH TO TARGET | = | 101.4611654 | KM | LATITUDE ARC LENGTH TO TARGET | = 28.5915184 KM |
| FORWARD OVERLAP RATIO | = | 0. | PCT | SIDE OVERLAP RATIO | = 0. PCT |
| TIME BETWEEN PHOTOS | = | 0. | SEC | ALPHA | = 29.2334554 DEG. |

| | X | Y | Z | MAGNITUDE (KM) |
|---|---|---|---|---|
| DIRECTION COSINES TO TARGET | -0.70539060 | -0.67025488 | -0.23061330 | 116.33746433 |
| CAMERA AXIS | -0.71508039 | -0.65308118 | -0.24928902 | 111.93325043 |
| C1 | -0.82968132 | -0.51433989 | -0.21698707 | 79.74321747 |
| C2 | -0.58524499 | -0.73035692 | -0.35223156 | 196.27694702 |
| C3 | -0.57657723 | -0.76999261 | -0.27325825 | 220.26249695 |
| C4 | -0.82101355 | -0.55397559 | -0.13801377 | 82.54151154 |

| | X | Y | Z | X DOT | Y DOT | Z DOT |
|---|---|---|---|---|---|---|
| STATE VECTOR (1950.0) | -255.2143288 | -1605.7542114 | -735.3722000 | 1.7814896 | 0.0102823 | -0.7055697 |

LONG -20.9510 DEG
LATI -2.9088 DEG

LONG -28.5162 DEG
LATI -9.0968 DEG

(1) * 61.15774 KM * (2)

LOW RESOLUTION

42.86802 KM 341.77134 KM

(4) * 170.71933 KM * (3)

LONG -21.7459 DEG
LATI -1.7399 DEG

LONG -28.7547 DEG
LATI -2.1253 DEG

LONG -21.9219 DEG
LATI -2.7686 DEG

LONG -25.6651 DEG
LATI -4.4807 DEG

(1) * 124.62720 KM * (2)

HIGH RESOLUTION

7.72765 KM 30.26722 KM

(4) * 145.71988 KM * (3)

LONG -22.0859 DEG
LATI -2.5735 DEG

LONG -26.6208 DEG
LATI -4.1849 DEG

LOW RESOLUTION 136

| INDEX | LONGITUDE | LATITUDE |
|---|---|---|
| 1 | -20.9509869 | -2.9088059 |
| 2 | -21.0982182 | -3.0323990 |
| 3 | -21.2668114 | -3.1738044 |
| 4 | -21.4642413 | -3.3392307 |
| 5 | -21.7017884 | -3.5380294 |
| 6 | -21.9974775 | -3.7851098 |
| 7 | -22.3824577 | -4.1061440 |
| 8 | -22.9169338 | -4.5505639 |
| 9 | -23.7406852 | -5.2324140 |
| 10 | -25.3305995 | -6.5367863 |
| 11 | 0. | 0. |
| 12 | 0. | 0. |
| 13 | 0. | 0. |
| 14 | 0. | 0. |
| 15 | 0. | 0. |
| 16 | 0. | 0. |
| 17 | 0. | 0. |
| 18 | 0. | 0. |
| 19 | 0. | 0. |
| 20 | 0. | 0. |
| 21 | 0. | 0. |
| 22 | 0. | 0. |
| 23 | 0. | 0. |
| 24 | 0. | 0. |
| 25 | 0. | 0. |
| 26 | 0. | 0. |
| 27 | -27.4758937 | -2.0812986 |
| 28 | -25.1767190 | -1.9726038 |
| 29 | -24.0274611 | -1.9040535 |
| 30 | -23.2874851 | -1.8549069 |
| 31 | -22.7556183 | -1.8171615 |
| 32 | -22.3472106 | -1.7868048 |
| 33 | -22.0189483 | -1.7615416 |
| 34 | -21.7458875 | -1.7399403 |
| 35 | -21.6531336 | -1.8736651 |
| 36 | -21.5675514 | -1.9976715 |
| 37 | -21.4877133 | -2.1138820 |
| 38 | -21.4124889 | -2.2238549 |
| 39 | -21.3409393 | -2.3288819 |
| 40 | -21.2722857 | -2.4300609 |
| 41 | -21.2058451 | -2.5283473 |
| 42 | -21.1410232 | -2.6245966 |
| 43 | -21.0772736 | -2.7195943 |
| 44 | -21.0140908 | -2.8140883 |

CORNER 2,3 OF LOW RESOLUTION FRAME 1 IS OFF THE MOON

HIGH RESOLUTION 136

| INDEX | LONGITUDE | LATITUDE |
|---|---|---|
| 1 | -21.9219494 | -2.7685744 |
| 2 | -22.0617871 | -2.8340700 |
| 3 | -22.2168360 | -2.9065554 |
| 4 | -22.3903022 | -2.9874820 |
| 5 | -22.5864005 | -3.0787495 |
| 6 | -22.8107960 | -3.1829039 |
| 7 | -23.0713403 | -3.3034585 |
| 8 | -23.3793342 | -3.4454342 |
| 9 | -23.7518220 | -3.6163648 |
| 10 | -24.2162406 | -3.8282791 |
| 11 | -24.8210163 | -4.1022201 |
| 12 | -25.6651046 | -4.4806851 |
| 13 | -25.7400763 | -4.4552034 |
| 14 | -25.8170047 | -4.4294655 |
| 15 | -25.8960061 | -4.4034630 |
| 16 | -25.9772103 | -4.3771890 |
| 17 | -26.0607536 | -4.3506323 |
| 18 | -26.1467867 | -4.3237872 |
| 19 | -26.2354767 | -4.2966456 |
| 20 | -26.3270047 | -4.2691951 |
| 21 | -26.4215720 | -4.2414313 |
| 22 | -26.5194077 | -4.2133430 |
| 23 | -26.6207609 | -4.1849242 |
| 24 | -25.4921575 | -3.7961465 |
| 25 | -24.7358439 | -3.5310079 |
| 26 | -24.1756897 | -3.3322793 |
| 27 | -23.7367408 | -3.1751645 |
| 28 | -23.3797338 | -3.0464829 |
| 29 | -23.0814593 | -2.9383593 |
| 30 | -22.8270757 | -2.8457086 |
| 31 | -22.6065357 | -2.7650603 |
| 32 | -22.4127498 | -2.6939452 |
| 33 | -22.2405195 | -2.6305483 |
| 34 | -22.0859489 | -2.5734957 |
| 35 | -22.0704787 | -2.5917989 |
| 36 | -22.0551345 | -2.6099758 |
| 37 | -22.0399101 | -2.6280313 |
| 38 | -22.0247984 | -2.6459709 |
| 39 | -22.0097959 | -2.6637968 |
| 40 | -21.9949059 | -2.6815126 |
| 41 | -21.9801188 | -2.6991225 |
| 42 | -21.9654303 | -2.7166308 |
| 43 | -21.9508445 | -2.7340393 |
| 44 | -21.9363508 | -2.7513538 |

**********
* PHOTO FRAME NUMBER 1 OF 8 *
**********

FRAME 137

| | YEAR | MONTH | DAY | HOUR | MINUTE | SECOND |
|---|---|---|---|---|---|---|
| GMT | 67 | 2 | 20 | 15 | 10 | 50.699 |

| | | | | | | |
|---|---|---|---|---|---|---|
| LONGITUDE OF NADIR POINT | = | -23.0326233 | DEG | LATITUDE OF NADIR POINT | = | -1.7079263 DEG |
| LONG OF CAMERA AXIS INTERSECT | = | -23.4624984 | DEG | LATI OF CAMERA AXIS INTERSECT | = | -2.8132703 DEG |
| SPACECRAFT RADIUS | = | 1784.3783264 | KM | SPACECRAFT ALTITUDE | = | 46.2883301 KM |
| MEAN ALTITUDE RATE | = | 0.0154139 | KM/SEC | TIME FROM PERIAPSIS | = | 29.7457175 SEC |
| HORIZONTAL VELOCITY | = | 1.9161603 | KM/SEC | TRUE ANOMALY | = | 1.8304918 DEG |
| SCALE FACTOR (HIGH) | = | 0.0103536 | M/KM | TILT DISTANCE (HIGH) | = | 470.2575493 MM |
| SCALE FACTOR (LOW) | = | 0.0013579 | M/KM | TILT DISTANCE (LOW) | = | 61.6731210 MM |
| IMAGE MOTION COMPENSATION (V/H) | = | 0.0325229 | RAD/SEC | SWING ANGLE | = | 0.0885799 DEG |
| EMISSION ANGLE | = | 38.8150063 | DEG | INCIDENCE ANGLE | = | 70.8140049 DEG |
| PHASE ANGLE | = | 62.2734814 | DEG | NORTH DEVIATION ANGLE | = | 333.5705185 DEG |
| TILT ANGLE | = | 37.6291332 | DEG | RESOLUTION CONSTANT | = | 1.2784865 MTR |
| TILT AZIMUTH | = | 201.2285252 | DEG | SUN AZIMUTH AT PRINCIPAL GND PT | = | 90.5524445 DEG |
| SUN ANGLE AT NADIR | = | 70.3987360 | DEG | SUN ARC AT NADIR | = | 2135.5733643 KM |
| LONGITUDE DISTANCE TO TARGET | = | 0.1503768 | DEG | LATITUDE DISTANCE TO TARGET | = | 1.4420737 DEG |
| LONGITUDE ARC LENGTH TO TARGET | = | 4.5617393 | KM | LATITUDE ARC LENGTH TO TARGET | = | 43.7458720 KM |
| FORWARD OVERLAP RATIO | = | 0. | PCT | SIDE OVERLAP RATIO | = | 0. PCT |
| TIME BETWEEN PHOTOS | = | 0. | SEC | ALPHA | = | 2.8119241 DEG. |

| | X | Y | Z | MAGNITUDE (KM) |
|---|---|---|---|---|
| DIRECTION COSINES TO TARGET | -0.71705598 | 0.22782068 | -0.65873247 | 64.25336170 |
| CAMERA AXIS | -0.83062661 | 0.11291572 | -0.54526092 | 58.91642761 |
| C1 | -0.87689992 | 0.23633300 | -0.41856091 | 52.43020752 |
| C2 | -0.72514886 | 0.06233022 | -0.68576533 | 70.14598083 |
| C3 | -0.75658884 | -0.01427586 | -0.65373506 | 70.15527344 |
| C4 | -0.90833990 | 0.15972690 | -0.38653067 | 52.40533447 |

| | X | Y | Z | X DOT | Y DOT | Z DOT |
|---|---|---|---|---|---|---|
| STATE VECTOR (1950.0) | -293.1026268 | -1605.5018311 | -721.4296722 | 1.7775714 | -0.0202012 | -0.7153602 |

LONG -22.7158 DEG
LATI -2.2854 DEG

LONG -23.0818 DEG
LATI -4.6311 DEG

(1) * 72.00915 KM * (2)

LOW RESOLUTION

30.65309 KM 61.34739 KM

(4) * 72.11871 KM * (3)

LONG -23.6589 DEG
LATI -1.9209 DEG

LONG -24.9738 DEG
LATI -3.9029 DEG

LONG -23.2498 DEG
LATI -2.4769 DEG

LONG -23.5569 DEG
LATI -3.3408 DEG

(1) * 27.80793 KM * (2)

HIGH RESOLUTION

4.65263 KM 6.22838 KM

(4) * 27.81248 KM * (3)

LONG -23.3930 DEG
LATI -2.4216 DEG

LONG -23.7488 DEG
LATI -3.2668 DEG

LOW RESOLUTION 137

| INDEX | LONGITUDE | LATITUDE |
|---|---|---|
| 1 | -22.7158496 | -2.2854325 |
| 2 | -22.7351313 | -2.4050709 |
| 3 | -22.7553861 | -2.5311869 |
| 4 | -22.7769148 | -2.6657596 |
| 5 | -22.8000965 | -2.8112469 |
| 6 | -22.8254023 | -2.9707984 |
| 7 | -22.8534575 | -3.1485643 |
| 8 | -22.8851051 | -3.3502043 |
| 9 | -22.9215169 | -3.5837089 |
| 10 | -22.9644103 | -3.8608506 |
| 11 | -23.0164051 | -4.1998892 |
| 12 | -23.0817804 | -4.6311046 |
| 13 | -23.2628794 | -4.5552511 |
| 14 | -23.4374795 | -4.4833754 |
| 15 | -23.6073430 | -4.4146252 |
| 16 | -23.7740541 | -4.3482717 |
| 17 | -23.9390681 | -4.2836794 |
| 18 | -24.1037781 | -4.2202790 |
| 19 | -24.2695742 | -4.1575344 |
| 20 | -24.4378769 | -4.0949399 |
| 21 | -24.6101990 | -4.0319886 |
| 22 | -24.7882075 | -3.9681614 |
| 23 | -24.9737973 | -3.9029092 |
| 24 | -24.7300143 | -3.5398010 |
| 25 | -24.5390182 | -3.2539140 |
| 26 | -24.3833206 | -3.0199595 |
| 27 | -24.2524338 | -2.8226610 |
| 28 | -24.1396229 | -2.6521530 |
| 29 | -24.0403326 | -2.5017284 |
| 30 | -23.9513454 | -2.3666357 |
| 31 | -23.8703053 | -2.2433824 |
| 32 | -23.7954326 | -2.1293183 |
| 33 | -23.7253447 | -2.0223729 |
| 34 | -23.6589210 | -1.9208746 |
| 35 | -23.5680454 | -1.9557965 |
| 36 | -23.4803014 | -1.9895589 |
| 37 | -23.3948967 | -2.0224600 |
| 38 | -23.3111176 | -2.0547727 |
| 39 | -23.2283015 | -2.0867508 |
| 40 | -23.1458168 | -2.1186376 |
| 41 | -23.0630417 | -2.1506729 |
| 42 | -22.9793446 | -2.1831009 |
| 43 | -22.8940663 | -2.2161795 |
| 44 | -22.8064964 | -2.2501870 |

HIGH RESOLUTION 137

| INDEX | LONGITUDE | LATITUDE |
|---|---|---|
| 1 | -23.2497723 | -2.4769288 |
| 2 | -23.2713761 | -2.5376773 |
| 3 | -23.2938201 | -2.6007943 |
| 4 | -23.3172102 | -2.6665698 |
| 5 | -23.3416622 | -2.7353362 |
| 6 | -23.3673096 | -2.8074681 |
| 7 | -23.3943093 | -2.8833993 |
| 8 | -23.4228356 | -2.9636267 |
| 9 | -23.4530933 | -3.0487309 |
| 10 | -23.4853318 | -3.1393948 |
| 11 | -23.5198276 | -3.2364210 |
| 12 | -23.5569293 | -3.3407727 |
| 13 | -23.5743771 | -3.3340082 |
| 14 | -23.5918145 | -3.3272540 |
| 15 | -23.6092417 | -3.3205101 |
| 16 | -23.6266689 | -3.3137746 |
| 17 | -23.6440961 | -3.3070469 |
| 18 | -23.6615233 | -3.3003260 |
| 19 | -23.6789575 | -3.2936102 |
| 20 | -23.6963916 | -3.2868996 |
| 21 | -23.7138393 | -3.2801923 |
| 22 | -23.7313006 | -3.2734876 |
| 23 | -23.7487721 | -3.2667846 |
| 24 | -23.7057352 | -3.1647083 |
| 25 | -23.6657307 | -3.0697918 |
| 26 | -23.6283662 | -2.9810966 |
| 27 | -23.5933001 | -2.8978349 |
| 28 | -23.5602522 | -2.8193424 |
| 29 | -23.5289869 | -2.7450513 |
| 30 | -23.4992859 | -2.6744732 |
| 31 | -23.4709816 | -2.6071873 |
| 32 | -23.4439135 | -2.5428256 |
| 33 | -23.4179451 | -2.4810627 |
| 34 | -23.3929570 | -2.4216162 |
| 35 | -23.3799214 | -2.4266424 |
| 36 | -23.3668964 | -2.4316668 |
| 37 | -23.3538780 | -2.4366913 |
| 38 | -23.3408666 | -2.4417149 |
| 39 | -23.3278549 | -2.4467385 |
| 40 | -23.3148503 | -2.4517638 |
| 41 | -23.3018422 | -2.4567900 |
| 42 | -23.2888308 | -2.4618196 |
| 43 | -23.2758193 | -2.4668517 |
| 44 | -23.2628009 | -2.4718881 |

**********
* PHOTO FRAME NUMBER 2 OF 8 *
**********

## FRAME 138

| | YEAR | MONTH | DAY | HOUR | MINUTE | SECOND |
|---|---|---|---|---|---|---|
| GMT | 67 | 2 | 20 | 15 | 10 | 53.299 |

| | | | | | |
|---|---|---|---|---|---|
| LONGITUDE OF NADIR POINT | = | -22.8834991 | DEG | LATITUDE OF NADIR POINT | = | -1.7651377 | DEG |
| LONG OF CAMERA AXIS INTERSECT | = | -23.3096764 | DEG | LATI OF CAMERA AXIS INTERSECT | = | -2.8730524 | DEG |
| SPACECRAFT RADIUS | = | 1784.4201660 | KM | SPACECRAFT ALTITUDE | = | 46.3301697 | KM |
| MEAN ALTITUDE RATE | = | 0.0167602 | KM/SEC | TIME FROM PERIAPSIS | = | 32.3453617 | SEC |
| HORIZONTAL VELOCITY | = | 1.9161155 | KM/SEC | TRUE ANOMALY | = | 1.9904374 | DEG |
| SCALE FACTOR (HIGH) | = | 0.0103443 | M/KM | TILT DISTANCE (HIGH) | = | 470.2493858 | MM |
| SCALE FACTOR (LOW) | = | 0.0013566 | M/KM | TILT DISTANCE (LOW) | = | 61.6720505 | MM |
| IMAGE MOTION COMPENSATION (V/H) | = | 0.0324935 | RAD/SEC | SWING ANGLE | = | 359.8265038 | DEG |
| EMISSION ANGLE | = | 38.8155842 | DEG | INCIDENCE ANGLE | = | 70.6604509 | DEG |
| PHASE ANGLE | = | 62.2734828 | DEG | NORTH DEVIATION ANGLE | = | 333.5589905 | DEG |
| TILT ANGLE | = | 37.6286521 | DEG | RESOLUTION CONSTANT | = | 1.2796424 | MTR |
| TILT AZIMUTH | = | 201.0164433 | DEG | SUN AZIMUTH AT PRINCIPAL GND PT | = | 90.5244570 | DEG |
| SUN ANGLE AT NADIR | = | 70.2484207 | DEG | SUN ARC AT NADIR | = | 2131.0134888 | KM |
| LONGITUDE DISTANCE TO TARGET | = | 0.2995009 | DEG | LATITUDE DISTANCE TO TARGET | = | 1.3848623 | DEG |
| LONGITUDE ARC LENGTH TO TARGET | = | 9.9854788 | KM | LATITUDE ARC LENGTH TO TARGET | = | 42.0103426 | KM |
| FORWARD OVERLAP RATIO | = | 6.6310218 | PCT | SIDE OVERLAP RATIO | = | 0. | PCT |
| TIME BETWEEN PHOTOS | = | 2.6000261 | SEC | ALPHA | = | 2.6019965 | DEG. |

| DIRECTION COSINES TO TARGET | X | Y | Z | MAGNITUDE (KM) |
|---|---|---|---|---|
| CAMERA AXIS | -0.75290859 | 0.16291925 | -0.63764094 | 63.58369637 |
| C1 | -0.83062591 | 0.11292107 | -0.54526088 | 58.96969604 |
| C2 | -0.87689844 | 0.23633865 | -0.41856086 | 52.45512390 |
| C3 | -0.72514849 | 0.06233491 | -0.68576530 | 70.22351074 |
| C4 | -0.75658895 | -0.01427096 | -0.65373503 | 70.20526123 |
| | -0.90833888 | 0.15973274 | -0.38653062 | 52.44506836 |

| | X | Y | Z | X DOT | Y DOT | Z DOT |
|---|---|---|---|---|---|---|
| STATE VECTOR (1950.0) | -288.4783134 | -1605.5496826 | -723.2882080 | 1.7782243 | -0.0165972 | -0.7137389 |

LONG -22.5621 DEG
LATI -2.3452 DEG

LONG -22.9284 DEG
LATI -4.6985 DEG

(1) • 72.23927 KM • (2)

LOW RESOLUTION

30.68087 KM 61.40506 KM

(4) • 72.02418 KM • (3)

LONG -23.5058 DEG
LATI -1.9797 DEG

LONG -24.8184 DEG
LATI -3.9595 DEG

LONG -23.0968 DEG
LATI -2.5365 DEG

LONG -23.4042 DEG
LATI -3.4014 DEG

(1) • 27.84011 KM • (2)

HIGH RESOLUTION

4.65684 KM 6.23406 KM

(4) • 27.83115 KM • (3)

LONG -23.2401 DEG
LATI -2.4809 DEG

LONG -23.5960 DEG
LATI -3.3267 DEG

LOW RESOLUTION 138

| INDEX | LONGITUDE | LATITUDE |
|---|---|---|
| 1 | -22.5620780 | -2.3452188 |
| 2 | -22.5813699 | -2.4651168 |
| 3 | -22.6016316 | -2.5915188 |
| 4 | -22.6231742 | -2.7264117 |
| 5 | -22.6463695 | -2.8722652 |
| 6 | -22.6716924 | -3.0322385 |
| 7 | -22.6997714 | -3.2105039 |
| 8 | -22.7314429 | -3.4127466 |
| 9 | -22.7678921 | -3.6470008 |
| 10 | -22.8108337 | -3.9251082 |
| 11 | -22.8628967 | -4.2654471 |
| 12 | -22.9283743 | -4.6985178 |
| 13 | -23.1099482 | -4.6213247 |
| 14 | -23.2848692 | -4.5482289 |
| 15 | -23.4549170 | -4.4783552 |
| 16 | -23.6216862 | -4.4109557 |
| 17 | -23.7866423 | -4.3453833 |
| 18 | -23.9511814 | -4.2810515 |
| 19 | -24.1166873 | -4.2174197 |
| 20 | -24.2845733 | -4.1539682 |
| 21 | -24.4563456 | -4.0901878 |
| 22 | -24.6336575 | -4.0255512 |
| 23 | -24.8183730 | -3.9595024 |
| 24 | -24.5752525 | -3.5971199 |
| 25 | -24.3846900 | -3.3116931 |
| 26 | -24.2293000 | -3.0780478 |
| 27 | -24.0986383 | -2.8809626 |
| 28 | -23.9859984 | -2.7106058 |
| 29 | -23.8868377 | -2.5602912 |
| 30 | -23.7979529 | -2.4252772 |
| 31 | -23.7169948 | -2.3020793 |
| 32 | -23.6421905 | -2.1880553 |
| 33 | -23.5721538 | -2.0811347 |
| 34 | -23.5057745 | -1.9796509 |
| 35 | -23.4149981 | -2.0146104 |
| 36 | -23.3273189 | -2.0484198 |
| 37 | -23.2419448 | -2.0813780 |
| 38 | -23.1581657 | -2.1137582 |
| 39 | -23.0753257 | -2.1458140 |
| 40 | -22.9927831 | -2.1777887 |
| 41 | -22.9099259 | -2.2099230 |
| 42 | -22.8261161 | -2.2424638 |
| 43 | -22.7406943 | -2.2756670 |
| 44 | -22.6529436 | -2.3098154 |

HIGH RESOLUTION 138

| INDEX | LONGITUDE | LATITUDE |
|---|---|---|
| 1 | -23.0968239 | -2.5364949 |
| 2 | -23.1184449 | -2.5973109 |
| 3 | -23.1409059 | -2.6605012 |
| 4 | -23.1643128 | -2.7263528 |
| 5 | -23.1887856 | -2.7951994 |
| 6 | -23.2144535 | -2.8674167 |
| 7 | -23.2414737 | -2.9434375 |
| 8 | -23.2700238 | -3.0237631 |
| 9 | -23.3003089 | -3.1089714 |
| 10 | -23.3325713 | -3.1997472 |
| 11 | -23.3670979 | -3.2968964 |
| 12 | -23.4042301 | -3.4013804 |
| 13 | -23.4216778 | -3.3945510 |
| 14 | -23.4391153 | -3.3877345 |
| 15 | -23.4565425 | -3.3809257 |
| 16 | -23.4739697 | -3.3741279 |
| 17 | -23.4913902 | -3.3673379 |
| 18 | -23.5088141 | -3.3605546 |
| 19 | -23.5262413 | -3.3537773 |
| 20 | -23.5436718 | -3.3470052 |
| 21 | -23.5611093 | -3.3402382 |
| 22 | -23.5785570 | -3.3334738 |
| 23 | -23.5960186 | -3.3267110 |
| 24 | -23.5529678 | -3.2245630 |
| 25 | -23.5129530 | -3.1295798 |
| 26 | -23.4755714 | -3.0408215 |
| 27 | -23.4404950 | -2.9574992 |
| 28 | -23.4074335 | -2.8789503 |
| 29 | -23.3761513 | -2.8046045 |
| 30 | -23.3464434 | -2.7339753 |
| 31 | -23.3181219 | -2.6666381 |
| 32 | -23.2910438 | -2.6022269 |
| 33 | -23.2650650 | -2.5404179 |
| 34 | -23.2400632 | -2.4809270 |
| 35 | -23.2270277 | -2.4859754 |
| 36 | -23.2139990 | -2.4910212 |
| 37 | -23.2009773 | -2.4960678 |
| 38 | -23.1879590 | -2.5011136 |
| 39 | -23.1749475 | -2.5061603 |
| 40 | -23.1619360 | -2.5112087 |
| 41 | -23.1489210 | -2.5162579 |
| 42 | -23.1359062 | -2.5213105 |
| 43 | -23.1228845 | -2.5263683 |
| 44 | -23.1098559 | -2.5314277 |

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* PHOTO FRAME NUMBER 3 OF 8 *
**********

## FRAME 139

| | YEAR | MONTH | DAY | HOUR | MINUTE | SECOND |
|---|---|---|---|---|---|---|
| GMT | 67 | 2 | 20 | 15 | 10 | 55.999 |

| | | | | | |
|---|---|---|---|---|---|
| LONGITUDE OF NADIR POINT | = | -22.7286911 | DEG | LATITUDE OF NADIR POINT | = | -1.8245108 | DEG |
| LONG OF CAMERA AXIS INTERSECT | = | -23.1510589 | DEG | LATI OF CAMERA AXIS INTERSECT | = | -2.9351960 | DEG |
| SPACECRAFT RADIUS | = | 1784.4673157 | KM | SPACECRAFT ALTITUDE | = | 46.3773193 | KM |
| MEAN ALTITUDE RATE | = | 0.0181576 | KM/SEC | TIME FROM PERIAPSIS | = | 35.0439153 | SEC |
| HORIZONTAL VELOCITY | = | 1.9160653 | KM/SEC | TRUE ANOMALY | = | 2.1564598 | DEG |
| SCALE FACTOR (HIGH) | = | 0.0103337 | M/KM | TILT DISTANCE (HIGH) | = | 470.2511787 | MM |
| SCALE FACTOR (LOW) | = | 0.0013552 | M/KM | TILT DISTANCE (LOW) | = | 61.6722860 | MM |
| IMAGE MOTION COMPENSATION (V/H) | = | 0.0324599 | RAD/SEC | SWING ANGLE | = | 359.5544624 | DEG |
| EMISSION ANGLE | = | 38.8169127 | DEG | INCIDENCE ANGLE | = | 70.5011139 | DEG |
| PHASE ANGLE | = | 62.2734818 | DEG | NORTH DEVIATION ANGLE | = | 333.5473785 | DEG |
| TILT ANGLE | = | 37.6287580 | DEG | RESOLUTION CONSTANT | = | 1.2809576 | MTR |
| TILT AZIMUTH | = | 200.7961445 | DEG | SUN AZIMUTH AT PRINCIPAL GND PT | = | 90.4949923 | DEG |
| SUN ANGLE AT NADIR | = | 70.0924091 | DEG | SUN ARC AT NADIR | = | 2126.2808228 | KM |
| LONGITUDE DISTANCE TO TARGET | = | 0.4543090 | DEG | LATITUDE DISTANCE TO TARGET | = | 1.3254892 | DEG |
| LONGITUDE ARC LENGTH TO TARGET | = | 13.7816418 | KM | LATITUDE ARC LENGTH TO TARGET | = | 40.2092352 | KM |
| FORWARD OVERLAP RATIO | = | 3.1690343 | PCT | SIDE OVERLAP RATIO | = | 0. | PCT |
| TIME BETWEEN PHOTOS | = | 2.6998043 | SEC | ALPHA | = | 2.3840136 | DEG. |

| DIRECTION COSINES TO TARGET | X | Y | Z | MAGNITUDE (KM) |
|---|---|---|---|---|
| CAMERA AXIS | -0.78578994 | 0.09342412 | -0.61139685 | 63.28761816 |
| C1 | -0.83062522 | 0.11292658 | -0.54526079 | 59.03030396 |
| C2 | -0.87689692 | 0.23634443 | -0.41856077 | 52.51679993 |
| C3 | -0.72514814 | 0.06233974 | -0.68576522 | 70.31037903 |
| C4 | -0.75658911 | -0.01426594 | -0.65373497 | 70.26347351 |
| | -0.90833788 | 0.15973874 | -0.38653053 | 52.49098206 |

| STATE VECTOR (1950.0) | X | Y | Z | X DOT | Y DOT | Z DOT |
|---|---|---|---|---|---|---|
| | -283.6761971 | -1605.5894470 | -725.2130356 | 1.7788910 | -0.0128561 | -0.7120515 |

LONG -22.4024 DEG
LATI -2.4073 DEG

LONG -22.7691 DEG
LATI -4.7688 DEG

(1) * 72.48619 KM * (2)

LOW RESOLUTION

30.71279 KM 61.47381 KM

(4) * 71.93330 KM * (3)

LONG -23.3468 DEG
LATI -2.3407 DEG

LONG -24.6572 DEG
LATI -4.0185 DEG

LONG -22.9381 DEG
LATI -2.5984 DEG

LONG -23.2457 DEG
LATI -3.4644 DEG

(1) * 27.87609 KM * (2)

HIGH RESOLUTION

4.66166 KM 6.24065 KM

(4) * 27.85306 KM * (3)

LONG -23.0814 DEG
LATI -2.5425 DEG

LONG -23.4375 DEG
LATI -3.3890 DEG

LOW RESOLUTION 139

| INDEX | LONGITUDE | LATITUDE |
|---|---|---|
| 1 | -22.4024053 | -2.4073223 |
| 2 | -22.4217041 | -2.5275004 |
| 3 | -22.4419794 | -2.6542115 |
| 4 | -22.4635355 | -2.7894518 |
| 5 | -22.4867444 | -2.9356981 |
| 6 | -22.5120878 | -3.0961272 |
| 7 | -22.5401907 | -3.2749288 |
| 8 | -22.5718930 | -3.4778187 |
| 9 | -22.6083798 | -3.7128780 |
| 10 | -22.6513727 | -3.9920201 |
| 11 | -22.7035108 | -4.3337473 |
| 12 | -22.7690978 | -4.7688021 |
| 13 | -22.9511871 | -4.6901986 |
| 14 | -23.1264565 | -4.6158196 |
| 15 | -23.2967162 | -4.5447642 |
| 16 | -23.4635675 | -4.4762685 |
| 17 | -23.6284790 | -4.4096656 |
| 18 | -23.7928543 | -4.3443596 |
| 19 | -23.9580731 | -4.2797990 |
| 20 | -24.1255527 | -4.2154561 |
| 21 | -24.2967720 | -4.1508109 |
| 22 | -24.4733801 | -4.0853299 |
| 23 | -24.6572113 | -4.0184520 |
| 24 | -24.4147499 | -3.6567850 |
| 25 | -24.2246213 | -3.3718056 |
| 26 | -24.0695314 | -3.1384557 |
| 27 | -23.9390886 | -2.9415729 |
| 28 | -23.8266125 | -2.7713569 |
| 29 | -23.7275815 | -2.6211414 |
| 30 | -23.6387925 | -2.4861965 |
| 31 | -23.5579128 | -2.3630473 |
| 32 | -23.4831734 | -2.2490523 |
| 33 | -23.4131880 | -2.1421488 |
| 34 | -23.3468497 | -2.0406701 |
| 35 | -23.2561653 | -2.0756697 |
| 36 | -23.1685407 | -2.1095321 |
| 37 | -23.0831907 | -2.1425543 |
| 38 | -22.9994082 | -2.1750080 |
| 39 | -22.9165273 | -2.2071474 |
| 40 | -22.8339195 | -2.2392160 |
| 41 | -22.7509670 | -2.2714570 |
| 42 | -22.6670341 | -2.3041156 |
| 43 | -22.5814519 | -2.3374529 |
| 44 | -22.4935064 | -2.3717498 |

HIGH RESOLUTION 139

| INDEX | LONGITUDE | LATITUDE |
|---|---|---|
| 1 | -22.9380527 | -2.5983832 |
| 2 | -22.9596941 | -2.6592778 |
| 3 | -22.9821756 | -2.7225484 |
| 4 | -23.0056067 | -2.7884853 |
| 5 | -23.0300996 | -2.8574224 |
| 6 | -23.0557914 | -2.9297345 |
| 7 | -23.0828390 | -3.0058569 |
| 8 | -23.1114130 | -3.0862892 |
| 9 | -23.1417255 | -3.1716145 |
| 10 | -23.1740186 | -3.2625158 |
| 11 | -23.2085760 | -3.3597999 |
| 12 | -23.2457459 | -3.4644324 |
| 13 | -23.2631969 | -3.4575356 |
| 14 | -23.2806344 | -3.4506516 |
| 15 | -23.2980652 | -3.4437771 |
| 16 | -23.3154888 | -3.4369127 |
| 17 | -23.3329093 | -3.4300561 |
| 18 | -23.3503296 | -3.4232079 |
| 19 | -23.3677502 | -3.4163666 |
| 20 | -23.3851774 | -3.4095322 |
| 21 | -23.4026079 | -3.4027003 |
| 22 | -23.4200490 | -3.3958727 |
| 23 | -23.4375000 | -3.3890485 |
| 24 | -23.3944323 | -3.2868167 |
| 25 | -23.3543937 | -3.1917542 |
| 26 | -23.3169985 | -3.1029216 |
| 27 | -23.2819014 | -3.0195310 |
| 28 | -23.2488263 | -2.9409146 |
| 29 | -23.2175303 | -2.8665057 |
| 30 | -23.1878018 | -2.7958158 |
| 31 | -23.1594703 | -2.7284206 |
| 32 | -23.1323783 | -2.6639530 |
| 33 | -23.1063793 | -2.6020911 |
| 34 | -23.0813637 | -2.5425473 |
| 35 | -23.0683248 | -2.5476187 |
| 36 | -23.0552928 | -2.5526875 |
| 37 | -23.0422678 | -2.5577572 |
| 38 | -23.0292459 | -2.5628278 |
| 39 | -23.0162277 | -2.5678984 |
| 40 | -23.0032094 | -2.5729706 |
| 41 | -22.9901874 | -2.5780455 |
| 42 | -22.9771624 | -2.5831228 |
| 43 | -22.9641337 | -2.5882045 |
| 44 | -22.9510984 | -2.5932913 |

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* PHOTO FRAME NUMBER 4 OF 8 *
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## FRAME 140

| | YEAR | MONTH | DAY | HOUR | MINUTE | SECOND |
|---|---|---|---|---|---|---|
| GMT | 67 | 2 | 20 | 15 | 10 | 58.699 |

| | | | | | |
|---|---|---|---|---|---|
| LONGITUDE OF NADIR POINT | = | -22.5739479 | DEG | LATITUDE OF NADIR POINT | = | -1.8838447 | DEG |
| LONG OF CAMERA AXIS INTERSECT | = | -22.9925337 | DEG | LATI OF CAMERA AXIS INTERSECT | = | -2.9974054 | DEG |
| SPACECRAFT RADIUS | = | 1784.5181885 | KM | SPACECRAFT ALTITUDE | = | 46.4281921 | KM |
| MEAN ALTITUDE RATE | = | 0.0195542 | KM/SEC | TIME FROM PERIAPSIS | = | 37.7414932 | SEC |
| HORIZONTAL VELOCITY | = | 1.9160106 | KM/SEC | TRUE ANOMALY | = | 2.3224140 | DEG |
| SCALE FACTOR (HIGH) | = | 0.0103222 | M/KM | TILT DISTANCE (HIGH) | = | 470.2637024 | MM |
| SCALE FACTOR (LOW) | = | 0.0013537 | M/KM | TILT DISTANCE (LOW) | = | 61.6739283 | MM |
| IMAGE MOTION COMPENSATION (V/H) | = | 0.0324233 | RAD/SEC | SWING ANGLE | = | 359.2825699 | DEG |
| EMISSION ANGLE | = | 38.8189979 | DEG | INCIDENCE ANGLE | = | 70.3419018 | DEG |
| PHASE ANGLE | = | 62.2734847 | DEG | NORTH DEVIATION ANGLE | = | 333.5361366 | DEG |
| TILT ANGLE | = | 37.6294956 | DEG | RESOLUTION CONSTANT | = | 1.2823873 | MTR |
| TILT AZIMUTH | = | 200.5757809 | DEG | SUN AZIMUTH AT PRINCIPAL GND PT | = | 90.4651165 | DEG |
| SUN ANGLE AT NADIR | = | 69.9364882 | DEG | SUN ARC AT NADIR | = | 2121.5509033 | KM |
| LONGITUDE DISTANCE TO TARGET | = | 0.6090522 | DEG | LATITUDE DISTANCE TO TARGET | = | 1.2661553 | DEG |
| LONGITUDE ARC LENGTH TO TARGET | = | 18.4758372 | KM | LATITUDE ARC LENGTH TO TARGET | = | 38.4093194 | KM |
| FORWARD OVERLAP RATIO | = | 3.3155764 | PCT | SIDE OVERLAP RATIO | = | 0. | PCT |
| TIME BETWEEN PHOTOS | = | 2.7004480 | SEC | ALPHA | = | 2.1660362 | DEG. |

| | X | Y | Z | MAGNITUDE (KM) |
|---|---|---|---|---|
| DIRECTION COSINES TO TARGET | -0.81348631 | 0.02308560 | -0.58112570 | 63.40312672 |
| CAMERA AXIS | -0.83062448 | 0.11293221 | -0.54526075 | 59.09619141 |
| C1 | -0.87689535 | 0.23635037 | -0.41856071 | 52.58319092 |
| C2 | -0.72514775 | 0.06234467 | -0.68576518 | 70.40367126 |
| C3 | -0.75658923 | -0.01426079 | -0.65373494 | 70.32803345 |
| C4 | -0.90833681 | 0.15974489 | -0.38653048 | 52.54156494 |

| | X | Y | Z | X DOT | Y DOT | Z DOT |
|---|---|---|---|---|---|---|
| STATE VECTOR (1950.0) | -278.8740883 | -1605.6190948 | -727.1325760 | 1.7795462 | -0.0091167 | -0.7103605 |

LONG -22.2427 DEG
LATI -2.4694 DEG

LONG -22.6099 DEG
LATI -4.8394 DEG

* (1) 72.74122 KM * (2)

LOW RESOLUTION

30.74780 KM 61.55156 KM

(4) * 71.84978 KM (3) *

LONG -23.1880 DEG
LATI -2.1017 DEG

LONG -24.4963 DEG
LATI -4.0776 DEG

LONG -22.7794 DEG
LATI -2.6603 DEG

LONG -23.0874 DEG
LATI -3.5276 DEG

* (1) 27.91466 KM * (2)

HIGH RESOLUTION

4.66697 KM 6.24794 KM

(4) * 27.87752 KM (3) *

LONG -22.9228 DEG
LATI -2.6042 DEG

LONG -23.2791 DEG
LATI -3.4515 DEG

LOW RESOLUTION 140

| INDEX | LONGITUDE | LATITUDE |
|---|---|---|
| 1 | -22.2427497 | -2.4694429 |
| 2 | -22.2620621 | -2.5899138 |
| 3 | -22.2823477 | -2.7169476 |
| 4 | -22.3039174 | -2.8525465 |
| 5 | -22.3271434 | -2.9992017 |
| 6 | -22.3525074 | -3.1601014 |
| 7 | -22.3806341 | -3.3394587 |
| 8 | -22.4123707 | -3.5430188 |
| 9 | -22.4488986 | -3.7789080 |
| 10 | -22.4919491 | -4.0591156 |
| 11 | -22.5441592 | -4.4022754 |
| 12 | -22.6098654 | -4.8393716 |
| 13 | -22.7924876 | -4.7593355 |
| 14 | -22.9681294 | -4.6836562 |
| 15 | -23.1386144 | -4.6114056 |
| 16 | -23.3055613 | -4.5418000 |
| 17 | -23.4704454 | -4.4741589 |
| 18 | -23.6346774 | -4.4078710 |
| 19 | -23.7996297 | -4.3423738 |
| 20 | -23.9667132 | -4.2771327 |
| 21 | -24.1374066 | -4.2116184 |
| 22 | -24.3133283 | -4.1452929 |
| 23 | -24.4963057 | -4.0775861 |
| 24 | -24.2544725 | -3.7165910 |
| 25 | -24.0647573 | -3.4320291 |
| 26 | -23.9099545 | -3.1989498 |
| 27 | -23.7797165 | -3.0022497 |
| 28 | -23.6673906 | -2.8321584 |
| 29 | -23.5684757 | -2.6820283 |
| 30 | -23.4797788 | -2.5471406 |
| 31 | -23.3989708 | -2.4240264 |
| 32 | -23.3242829 | -2.3100511 |
| 33 | -23.2543416 | -2.2031552 |
| 34 | -23.1880376 | -2.1016722 |
| 35 | -23.0974386 | -2.1367171 |
| 36 | -23.0098584 | -2.1706341 |
| 37 | -22.9245255 | -2.2037221 |
| 38 | -22.8407259 | -2.2362517 |
| 39 | -22.7578006 | -2.2684774 |
| 40 | -22.6751246 | -2.3006450 |
| 41 | -22.5920694 | -2.3329937 |
| 42 | -22.5080001 | -2.3657743 |
| 43 | -22.4222505 | -2.3992490 |
| 44 | -22.3341000 | -2.4336988 |

HIGH RESOLUTION 140

| INDEX | LONGITUDE | LATITUDE |
|---|---|---|
| 1 | -22.7793567 | -2.6603048 |
| 2 | -22.8010185 | -2.7212831 |
| 3 | -22.8235207 | -2.7846399 |
| 4 | -22.8469756 | -2.8506691 |
| 5 | -22.8714960 | -2.9197026 |
| 6 | -22.8972116 | -2.9921163 |
| 7 | -22.9242864 | -3.0683480 |
| 8 | -22.9528878 | -3.1488956 |
| 9 | -22.9832311 | -3.2343455 |
| 10 | -23.0155582 | -3.3253791 |
| 11 | -23.0501533 | -3.4228084 |
| 12 | -23.0873573 | -3.5276006 |
| 13 | -23.1048152 | -3.5206346 |
| 14 | -23.1222594 | -3.5136815 |
| 15 | -23.1396902 | -3.5067403 |
| 16 | -23.1571174 | -3.4998085 |
| 17 | -23.1745377 | -3.4928870 |
| 18 | -23.1919546 | -3.4859731 |
| 19 | -23.2093718 | -3.4790669 |
| 20 | -23.2267921 | -3.4721650 |
| 21 | -23.2442193 | -3.4652700 |
| 22 | -23.2616534 | -3.4583791 |
| 23 | -23.2790978 | -3.4514917 |
| 24 | -23.2360060 | -3.3491661 |
| 25 | -23.1959503 | -3.2540165 |
| 26 | -23.1585312 | -3.1651019 |
| 27 | -23.1234171 | -3.0816327 |
| 28 | -23.0903215 | -3.0029430 |
| 29 | -23.0590050 | -2.9284641 |
| 30 | -23.0292630 | -2.8577058 |
| 31 | -23.0009110 | -2.7902466 |
| 32 | -22.9738019 | -2.7257193 |
| 33 | -22.9477892 | -2.6637959 |
| 34 | -22.9227564 | -2.6041948 |
| 35 | -22.9097109 | -2.6092893 |
| 36 | -22.8966753 | -2.6143829 |
| 37 | -22.8836467 | -2.6194765 |
| 38 | -22.8706148 | -2.6245702 |
| 39 | -22.8575897 | -2.6296663 |
| 40 | -22.8445611 | -2.6347634 |
| 41 | -22.8315325 | -2.6398638 |
| 42 | -22.8185005 | -2.6449668 |
| 43 | -22.8054583 | -2.6500741 |
| 44 | -22.7924125 | -2.6551873 |

**********
* PHOTO FRAME NUMBER 5 OF 8 *
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## FRAME 141

| | YEAR | MONTH | DAY | HOUR | MINUTE | SECOND |
|---|---|---|---|---|---|---|
| GMT | 67 | 2 | 20 | 15 | 11 | 1.299 |

| | | | |
|---|---|---|---|
| LONGITUDE OF NADIR POINT | = -22.4248734 DEG | LATITUDE OF NADIR POINT | = -1.9409869 DEG |
| LONG OF CAMERA AXIS INTERSECT | = -22.8398380 DEG | LATI OF CAMERA AXIS INTERSECT | = -3.0574155 DEG |
| SPACECRAFT RADIUS | = 1784.5707855 KM | SPACECRAFT ALTITUDE | = 46.4807892 KM |
| MEAN ALTITUDE RATE | = 0.0208994 KM/SEC | TIME FROM PERIAPSIS | = 40.3401260 SEC |
| HORIZONTAL VELOCITY | = 1.9159545 KM/SEC | TRUE ANOMALY | = 2.4822705 DEG |
| SCALE FACTOR (HIGH) | = 0.0103102 M/KM | TILT DISTANCE (HIGH) | = 470.2857132 MM |
| SCALE FACTOR (LOW) | = 0.0013522 M/KM | TILT DISTANCE (LOW) | = 61.6768146 MM |
| IMAGE MOTION COMPENSATION (V/H) | = 0.0323851 RAD/SEC | SWING ANGLE | = 359.0206680 DEG |
| EMISSION ANGLE | = 38.8217077 DEG | INCIDENCE ANGLE | = 70.1885891 DEG |
| PHASE ANGLE | = 62.2734847 DEG | NORTH DEVIATION ANGLE | = 333.5256577 DEG |
| TILT ANGLE | = 37.6307926 DEG | RESOLUTION CONSTANT | = 1.2838750 MTR |
| TILT AZIMUTH | = 200.3633747 DEG | SUN AZIMUTH AT PRINCIPAL GND PT | = 90.4359369 DEG |
| SUN ANGLE AT NADIR | = 69.7863111 DEG | SUN ARC AT NADIR | = 2116.9952087 KM |
| LONGITUDE DISTANCE TO TARGET | = 0.7581267 DEG | LATITUDE DISTANCE TO TARGET | = 1.2090131 DEG |
| LONGITUDE ARC LENGTH TO TARGET | = 22.9980729 KM | LATITUDE ARC LENGTH TO TARGET | = 36.6758881 KM |
| FORWARD OVERLAP RATIO | = 6.9615888 PCT | SIDE OVERLAP RATIO | = 0. PCT |
| TIME BETWEEN PHOTOS | = 2.6000261 SEC | ALPHA | = 1.9559956 DEG. |

| | X | Y | Z | MAGNITUDE (KM) |
|---|---|---|---|---|
| DIRECTION COSINES TO TARGET | -0.83483034 | -0.04422730 | -0.54872783 | 63.90175247 |
| CAMERA AXIS | -0.83062381 | 0.11293752 | -0.54526068 | 59.16474915 |
| C1 | -0.87689387 | 0.23635597 | -0.41856062 | 52.65168762 |
| C2 | -0.72514740 | 0.06234933 | -0.68576512 | 70.49967957 |
| C3 | -0.75658937 | -0.01425594 | -0.65373489 | 70.39631653 |
| C4 | -0.90833583 | 0.15975068 | -0.38653040 | 52.59478760 |

| | X | Y | Z | X DOT | Y DOT | Z DOT |
|---|---|---|---|---|---|---|
| STATE VECTOR (1950.0) | -274.2464638 | -1605.6381073 | -728.9773941 | 1.7801667 | -0.0055147 | -0.7087273 |

LONG -22.0889 DEG
LATI -2.5293 DEG

LONG -22.4564 DEG
LATI -4.9077 DEG

* 72.99480 KM *
(1) (2)

LOW RESOLUTION

30.78451 KM 61.63504 KM

(4) (3)
* 71.77620 KM *

LONG -23.0351 DEG
LATI -2.1604 DEG

LONG -24.3415 DEG
LATI -4.1347 DEG

LONG -22.6265 DEG
LATI -2.7200 DEG

LONG -22.9348 DEG
LATI -3.5886 DEG

* 27.95427 KM *
(1) (2)

HIGH RESOLUTION

4.67254 KM 6.25563 KM

(4) (3)
* 27.90352 KM *

LONG -22.7700 DEG
LATI -2.6636 DEG

LONG -23.1265 DEG
LATI -3.5118 DEG

LOW RESOLUTION 141

| INDEX | LONGITUDE | LATITUDE |
|---|---|---|
| 1 | -22.0888963 | -2.5293257 |
| 2 | -22.1082189 | -2.6500886 |
| 3 | -22.1285217 | -2.7774434 |
| 4 | -22.1501050 | -2.9134026 |
| 5 | -22.1733482 | -3.0604651 |
| 6 | -22.1987360 | -3.2218343 |
| 7 | -22.2268865 | -3.4017449 |
| 8 | -22.2586539 | -3.6059710 |
| 9 | -22.2952225 | -3.8426866 |
| 10 | -22.3383279 | -4.1239529 |
| 11 | -22.3906164 | -4.4685333 |
| 12 | -22.4564354 | -4.9076530 |
| 13 | -22.6395974 | -4.8262159 |
| 14 | -22.8156147 | -4.7492653 |
| 15 | -22.9863353 | -4.6758484 |
| 16 | -23.1533914 | -4.6051619 |
| 17 | -23.3182654 | -4.5365083 |
| 18 | -23.4823709 | -4.4692668 |
| 19 | -23.6470845 | -4.4028611 |
| 20 | -23.8138058 | -4.3367508 |
| 21 | -23.9840107 | -4.2703947 |
| 22 | -24.1592972 | -4.2032505 |
| 23 | -24.3414652 | -4.1347438 |
| 24 | -24.1002162 | -3.7743582 |
| 25 | -23.9108765 | -3.4901694 |
| 26 | -23.7563298 | -3.2573300 |
| 27 | -23.6262796 | -3.0607870 |
| 28 | -23.5140903 | -2.8908007 |
| 29 | -23.4152780 | -2.7407380 |
| 30 | -23.3266597 | -2.6058930 |
| 31 | -23.2459133 | -2.4828019 |
| 32 | -23.1712730 | -2.3688368 |
| 33 | -23.1013694 | -2.2619375 |
| 34 | -23.0350893 | -2.1604426 |
| 35 | -22.9445620 | -2.1955327 |
| 36 | -22.8570228 | -2.2295060 |
| 37 | -22.7716932 | -2.2626598 |
| 38 | -22.6878731 | -2.2952662 |
| 39 | -22.6048965 | -2.3275782 |
| 40 | -22.5221419 | -2.3598414 |
| 41 | -22.4389741 | -2.3922993 |
| 42 | -22.3547716 | -2.4252012 |
| 43 | -22.2688513 | -2.4588100 |
| 44 | -22.1804960 | -2.4934117 |

HIGH RESOLUTION 141

| INDEX | LONGITUDE | LATITUDE |
|---|---|---|
| 1 | -22.6264765 | -2.7200101 |
| 2 | -22.6481590 | -2.7810728 |
| 3 | -22.6706884 | -2.8445202 |
| 4 | -22.6941671 | -2.9106432 |
| 5 | -22.7187114 | -2.9797741 |
| 6 | -22.7444544 | -3.0522945 |
| 7 | -22.7715566 | -3.1286364 |
| 8 | -22.8001921 | -3.2093035 |
| 9 | -22.8305659 | -3.2948798 |
| 10 | -22.8629274 | -3.3860517 |
| 11 | -22.8975565 | -3.4836295 |
| 12 | -22.9348049 | -3.5885822 |
| 13 | -22.9522662 | -3.5815505 |
| 14 | -22.9697139 | -3.5745316 |
| 15 | -22.9871514 | -3.5675239 |
| 16 | -23.0045788 | -3.5605280 |
| 17 | -23.0220025 | -3.5535407 |
| 18 | -23.0394194 | -3.5465620 |
| 19 | -23.0568399 | -3.5395927 |
| 20 | -23.0742569 | -3.5326293 |
| 21 | -23.0916808 | -3.5256710 |
| 22 | -23.1091080 | -3.5187179 |
| 23 | -23.1265454 | -3.5117682 |
| 24 | -23.0834298 | -3.4093443 |
| 25 | -23.0433502 | -3.3141025 |
| 26 | -23.0059106 | -3.2251000 |
| 27 | -22.9707727 | -3.1415489 |
| 28 | -22.9376566 | -3.0627814 |
| 29 | -22.9063196 | -2.9882273 |
| 30 | -22.8765571 | -2.9173991 |
| 31 | -22.8481879 | -2.8498725 |
| 32 | -22.8210549 | -2.7852777 |
| 33 | -22.7950251 | -2.7232929 |
| 34 | -22.7699754 | -2.6636294 |
| 35 | -22.7569263 | -2.6687469 |
| 36 | -22.7438841 | -2.6738645 |
| 37 | -22.7308452 | -2.6789812 |
| 38 | -22.7178099 | -2.6841012 |
| 39 | -22.7047744 | -2.6892196 |
| 40 | -22.6917391 | -2.6943414 |
| 41 | -22.6787002 | -2.6994657 |
| 42 | -22.6656544 | -2.7045943 |
| 43 | -22.6526055 | -2.7097281 |
| 44 | -22.6395462 | -2.7148661 |

**********
* PHOTO FRAME NUMBER 6 OF 8 *
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## FRAME 142

| | YEAR | MONTH | DAY | HOUR | MINUTE | SECOND |
|---|---|---|---|---|---|---|
| GMT | 67 | 2 | 20 | 15 | 11 | 3.999 |

| | | | | | |
|---|---|---|---|---|---|
| LONGITUDE OF NADIR POINT | = | -22.2700081 | DEG | LATITUDE OF NADIR POINT | = | -2.0003362 DEG |
| LONG OF CAMERA AXIS INTERSECT | = | -22.6812341 | DEG | LATI OF CAMERA AXIS INTERSECT | = | -3.1198425 DEG |
| SPACECRAFT RADIUS | = | 1784.6291199 | KM | SPACECRAFT ALTITUDE | = | 46.5391235 KM |
| MEAN ALTITUDE RATE | = | 0.0222966 | KM/SEC | TIME FROM PERIAPSIS | = | 43.0397239 SEC |
| HORIZONTAL VELOCITY | = | 1.9158920 | KM/SEC | TRUE ANOMALY | = | 2.6483287 DEG |
| SCALE FACTOR (HIGH) | = | 0.0102969 | M/KM | TILT DISTANCE (HIGH) | = | 470.3189850 MM |
| SCALE FACTOR (LOW) | = | 0.0013504 | M/KM | TILT DISTANCE (LOW) | = | 61.6811786 MM |
| IMAGE MOTION COMPENSATION (V/H) | = | 0.0323425 | RAD/SEC | SWING ANGLE | = | 358.7486496 DEG |
| EMISSION ANGLE | = | 38.8252621 | DEG | INCIDENCE ANGLE | = | 70.0293856 DEG |
| PHASE ANGLE | = | 62.2734871 | DEG | NORTH DEVIATION ANGLE | = | 333.5151367 DEG |
| TILT ANGLE | = | 37.6327524 | DEG | RESOLUTION CONSTANT | = | 1.2855353 MTR |
| TILT AZIMUTH | = | 200.1425953 | DEG | SUN AZIMUTH AT PRINCIPAL GND PT | = | 90.4052048 DEG |
| SUN ANGLE AT NADIR | = | 69.6303349 | DEG | SUN ARC AT NADIR | = | 2112.2636108 KM |
| LONGITUDE DISTANCE TO TARGET | = | 0.9129920 | DEG | LATITUDE DISTANCE TO TARGET | = | 1.1496699 DEG |
| LONGITUDE ARC LENGTH TO TARGET | = | 27.6959710 | KM | LATITUDE ARC LENGTH TO TARGET | = | 34.8756871 KM |
| FORWARD OVERLAP RATIO | = | 3.4743894 | PCT | SIDE OVERLAP RATIO | = | 0. PCT |
| TIME BETWEEN PHOTOS | = | 2.6998043 | SEC | ALPHA | = | 1.7377260 DEG. |

| | X | Y | Z | MAGNITUDE (KM) |
|---|---|---|---|---|
| DIRECTION COSINES TO TARGET | -0.85130471 | -0.11242931 | -0.51248408 | 64.81251717 |
| CAMERA AXIS | -0.83062308 | 0.11294310 | -0.54526062 | 59.24125671 |
| C1 | -0.87689234 | 0.23636184 | -0.41856055 | 52.72752380 |
| C2 | -0.72514702 | 0.06235421 | -0.68576507 | 70.60580444 |
| C3 | -0.75658951 | -0.01425085 | -0.65373485 | 70.47355652 |
| C4 | -0.90833478 | 0.15975676 | -0.38653032 | 52.65472412 |

| | X | Y | Z | X DOT | Y DOT | Z DOT |
|---|---|---|---|---|---|---|
| STATE VECTOR (1950.0) | -269.4373665 | -1605.6479645 | -730.8893661 | 1.7808003 | -0.0017731 | -0.7070265 |

LONG -21.9290 DEG
LATI -2.5916 DEG

LONG -22.2970 DEG
LATI -4.9789 DEG

(1) • 73.26646 KM • (2)

LOW RESOLUTION

30.82572 KM 61.73069 KM

(4) • 71.70687 KM • (3)

LONG -22.8763 DEG
LATI -2.2215 DEG

LONG -24.1808 DEG
LATI -4.1943 DEG

LONG -22.4677 DEG
LATI -2.7821 DEG

LONG -22.7764 DEG
LATI -3.6521 DEG

(1) • 27.99800 KM • (2)

HIGH RESOLUTION

4.67878 KM 6.26431 KM

(4) • 27.93307 KM • (3)

LONG -22.6113 DEG
LATI -2.7254 DEG

LONG -22.9681 DEG
LATI -3.5745 DEG

HIGH RESOLUTION 142

| INDEX | LONGITUDE | LATITUDE |
|---|---|---|
| 1 | -22.4676678 | -2.7820888 |
| 2 | -22.4893775 | -2.8432463 |
| 3 | -22.5119309 | -2.9067927 |
| 4 | -22.5354335 | -2.9730191 |
| 5 | -22.5600052 | -3.0422601 |
| 6 | -22.5857823 | -3.1148949 |
| 7 | -22.6129153 | -3.1913597 |
| 8 | -22.6415849 | -3.2721566 |
| 9 | -22.6719964 | -3.3578729 |
| 10 | -22.7043920 | -3.4491968 |
| 11 | -22.7390618 | -3.5469377 |
| 12 | -22.7763548 | -3.6520696 |
| 13 | -22.7938263 | -3.6449671 |
| 14 | -22.8112810 | -3.6378782 |
| 15 | -22.8287253 | -3.6308022 |
| 16 | -22.8461592 | -3.6237372 |
| 17 | -22.8635864 | -3.6166816 |
| 18 | -22.8810070 | -3.6096371 |
| 19 | -22.8984239 | -3.6026003 |
| 20 | -22.9158409 | -3.5955712 |
| 21 | -22.9332614 | -3.5885463 |
| 22 | -22.9506886 | -3.5815283 |
| 23 | -22.9681225 | -3.5745145 |
| 24 | -22.9249763 | -3.4719763 |
| 25 | -22.8848693 | -3.3766295 |
| 26 | -22.8473990 | -3.2875279 |
| 27 | -22.8122373 | -3.2038846 |
| 28 | -22.7790971 | -3.1250283 |
| 29 | -22.7477329 | -3.0503906 |
| 30 | -22.7179465 | -2.9794821 |
| 31 | -22.6895568 | -2.9118786 |
| 32 | -22.6624033 | -2.8472113 |
| 33 | -22.6363497 | -2.7851547 |
| 34 | -22.6112828 | -2.7254222 |
| 35 | -22.5982234 | -2.7305653 |
| 36 | -22.5851743 | -2.7357076 |
| 37 | -22.5721288 | -2.7408499 |
| 38 | -22.5590830 | -2.7459930 |
| 39 | -22.5460374 | -2.7511387 |
| 40 | -22.5329916 | -2.7562869 |
| 41 | -22.5199428 | -2.7614369 |
| 42 | -22.5068867 | -2.7665928 |
| 43 | -22.4938240 | -2.7717522 |
| 44 | -22.4807510 | -2.7769175 |

LOW RESOLUTION 142

| INDEX | LONGITUDE | LATITUDE |
|---|---|---|
| 1 | -21.9290221 | -2.5915744 |
| 2 | -21.9483583 | -2.7126523 |
| 3 | -21.9686747 | -2.8403555 |
| 4 | -21.9902751 | -2.9767005 |
| 5 | -22.0135388 | -3.1242002 |
| 6 | -22.0389471 | -3.2860757 |
| 7 | -22.0671284 | -3.4665796 |
| 8 | -22.0989299 | -3.6715186 |
| 9 | -22.1355464 | -3.9091178 |
| 10 | -22.1787064 | -4.1915171 |
| 11 | -22.2310803 | -4.5376164 |
| 12 | -22.2970223 | -4.9788979 |
| 13 | -22.4807613 | -4.8959828 |
| 14 | -22.6571884 | -4.8176926 |
| 15 | -22.8281753 | -4.7430481 |
| 16 | -22.9953580 | -4.6712252 |
| 17 | -23.1602421 | -4.6015112 |
| 18 | -23.3242350 | -4.5332682 |
| 19 | -23.4887161 | -4.4659131 |
| 20 | -23.6550825 | -4.3988902 |
| 21 | -23.8247921 | -4.3316563 |
| 22 | -23.9994333 | -4.2636593 |
| 23 | -24.1807954 | -4.1943200 |
| 24 | -23.9401200 | -3.8345279 |
| 25 | -23.7511525 | -3.5506968 |
| 26 | -23.5968585 | -3.3180836 |
| 27 | -23.4669859 | -3.1216850 |
| 28 | -23.3549299 | -2.9517917 |
| 29 | -23.2562132 | -2.8017854 |
| 30 | -23.1676733 | -2.6669720 |
| 31 | -23.0869782 | -2.5438945 |
| 32 | -23.0123823 | -2.4299277 |
| 33 | -22.9425094 | -2.3230156 |
| 34 | -22.8762531 | -2.2214985 |
| 35 | -22.7857907 | -2.2566407 |
| 36 | -22.6982822 | -2.2906747 |
| 37 | -22.6129494 | -2.3239010 |
| 38 | -22.5290952 | -2.3565885 |
| 39 | -22.4460604 | -2.3889935 |
| 40 | -22.3632138 | -2.4213609 |
| 41 | -22.2799299 | -2.4539332 |
| 42 | -22.1955736 | -2.4869649 |
| 43 | -22.1094687 | -2.5207163 |
| 44 | -22.0208881 | -2.5554794 |

**********
* PHOTO FRAME NUMBER 7 OF 8 *
**********

## FRAME 143

| | YEAR | MONTH | DAY | HOUR | MINUTE | SECOND |
|---|---|---|---|---|---|---|
| GMT | 67 | 2 | 20 | 15 | 11 | 6.599 |

| | | | | | |
|---|---|---|---|---|---|
| LONGITUDE OF NADIR POINT | = | -22.1209373 | DEG | LATITUDE OF NADIR POINT | = | -2.0574365 | DEG |
| LONG OF CAMERA AXIS INTERSECT | = | -22.5285861 | DEG | LATI OF CAMERA AXIS INTERSECT | = | -3.1800182 | DEG |
| SPACECRAFT RADIUS | = | 1784.6888428 | KM | SPACECRAFT ALTITUDE | = | 46.5988464 | KM |
| MEAN ALTITUDE RATE | = | 0.0236412 | KM/SEC | TIME FROM PERIAPSIS | = | 45.6383481 | SEC |
| HORIZONTAL VELOCITY | = | 1.9158281 | KM/SEC | TRUE ANOMALY | = | 2.8081646 | DEG |
| SCALE FACTOR (HIGH) | = | 0.0102832 | M/KM | TILT DISTANCE (HIGH) | = | 470.3610306 | MM |
| SCALE FACTOR (LOW) | = | 0.0013486 | M/KM | TILT DISTANCE (LOW) | = | 61.6866922 | MM |
| IMAGE MOTION COMPENSATION (V/H) | = | 0.0322986 | RAD/SEC | SWING ANGLE | = | 358.4868164 | DEG |
| EMISSION ANGLE | = | 38.8293896 | DEG | INCIDENCE ANGLE | = | 69.8761940 | DEG |
| PHASE ANGLE | = | 62.2734871 | DEG | NORTH DEVIATION ANGLE | = | 333.5053635 | DEG |
| TILT ANGLE | = | 37.6352291 | DEG | RESOLUTION CONSTANT | = | 1.2872428 | MTR |
| TILT AZIMUTH | = | 199.9299583 | DEG | SUN AZIMUTH AT PRINCIPAL GND PT | = | 90.3752193 | DEG |
| SUN ANGLE AT NADIR | = | 69.4802179 | DEG | SUN ARC AT NADIR | = | 2107.7097473 | KM |
| LONGITUDE DISTANCE TO TARGET | = | 1.0620627 | DEG | LATITUDE DISTANCE TO TARGET | = | 1.0925635 | DEG |
| LONGITUDE ARC LENGTH TO TARGET | = | 32.2180905 | KM | LATITUDE ARC LENGTH TO TARGET | = | 33.1433434 | KM |
| FORWARD OVERLAP RATIO | = | 7.2038153 | PCT | SIDE OVERLAP RATIO | = | 0. | PCT |
| TIME BETWEEN PHOTOS | = | 2.6000261 | SEC | ALPHA | = | 1.5275572 | DEG. |

| DIRECTION COSINES TO TARGET | X | Y | Z | MAGNITUDE (KM) |
|---|---|---|---|---|
| CAMERA AXIS | -0.86182254 | -0.17538727 | -0.47592144 | 66.05207920 |
| C1 | -0.83062241 | 0.11294846 | -0.54526054 | 59.31994629 |
| C2 | -0.87689085 | 0.23636748 | -0.41856045 | 52.80503845 |
| C3 | -0.72514670 | 0.06235891 | -0.68576500 | 70.71412659 |
| C4 | -0.75658965 | -0.01424595 | -0.65373477 | 70.55395508 |
| | -0.90833380 | 0.15976260 | -0.38653024 | 52.71687317 |

| | X | Y | Z | X DOT | Y DOT | Z DOT |
|---|---|---|---|---|---|---|
| STATE VECTOR (1950.0) | -264.8065071 | -1605.6478882 | -732.7255020 | 1.7813996 | 0.0018282 | -0.7053853 |

LONG -21.7751 DEG
LATI -2.6515 DEG

LONG -22.1435 DEG
LATI -5.0478 DEG

* (1) 73.53597 KM * (2)

LOW RESOLUTION

30.86835 KM 61.83137 KM

(4) * 71.64687 KM (3) *

LONG -22.7234 DEG
LATI -2.2803 DEG

LONG -24.0263 DEG
LATI -4.2519 DEG

LONG -22.3148 DEG
LATI -2.8419 DEG

LONG -22.6239 DEG
LATI -3.7133 DEG

* (1) 28.04258 KM * (2)

HIGH RESOLUTION

4.68525 KM 6.27333 KM

(4) * 27.96394 KM (3) *

LONG -22.4585 DEG
LATI -2.7850 DEG

LONG -22.8157 DEG
LATI -3.6350 DEG

LOW RESOLUTION 143

| INDEX | LONGITUDE | LATITUDE |
|---|---|---|
| 1 | -21.7750764 | -2.6515340 |
| 2 | -21.7944262 | -2.7729278 |
| 3 | -21.8147564 | -2.9009759 |
| 4 | -21.8363738 | -3.0377069 |
| 5 | -21.8596580 | -3.1856429 |
| 6 | -21.8850937 | -3.3480195 |
| 7 | -21.9133024 | -3.5291126 |
| 8 | -21.9451377 | -3.7347610 |
| 9 | -21.9817989 | -3.9732362 |
| 10 | -22.0250204 | -4.2567590 |
| 11 | -22.0774763 | -4.6043611 |
| 12 | -22.1435378 | -5.0477821 |
| 13 | -22.3278573 | -4.9634215 |
| 14 | -22.5047011 | -4.8838225 |
| 15 | -22.6759543 | -4.8079818 |
| 16 | -22.8432803 | -4.7350533 |
| 17 | -23.0081885 | -4.6643062 |
| 18 | -23.1720891 | -4.5950908 |
| 19 | -23.3363619 | -4.5268128 |
| 20 | -23.5023971 | -4.4589071 |
| 21 | -23.6716526 | -4.3908237 |
| 22 | -23.8456993 | -4.3220028 |
| 23 | -24.0263033 | -4.2518576 |
| 24 | -23.7861538 | -3.8925999 |
| 25 | -23.5975211 | -3.6090856 |
| 26 | -23.4434559 | -3.3766670 |
| 27 | -23.3137438 | -3.1803904 |
| 28 | -23.2018073 | -3.0105698 |
| 29 | -23.1031759 | -2.8606053 |
| 30 | -23.0146942 | -2.7258106 |
| 31 | -22.9340501 | -2.6027349 |
| 32 | -22.8594885 | -2.4887578 |
| 33 | -22.7896361 | -2.3818244 |
| 34 | -22.7233970 | -2.2802782 |
| 35 | -22.6329892 | -2.3154700 |
| 36 | -22.5454979 | -2.3495671 |
| 37 | -22.4601581 | -2.3828651 |
| 38 | -22.3762662 | -2.4156347 |
| 39 | -22.2931633 | -2.4481310 |
| 40 | -22.2102244 | -2.4806009 |
| 41 | -22.1268175 | -2.5132893 |
| 42 | -22.0423040 | -2.5464464 |
| 43 | -21.9560149 | -2.5803412 |
| 44 | -21.8672087 | -2.6152615 |

HIGH RESOLUTION 143

| INDEX | LONGITUDE | LATITUDE |
|---|---|---|
| 1 | -22.3147945 | -2.8419008 |
| 2 | -22.3365316 | -2.9031556 |
| 3 | -22.3591123 | -2.9668010 |
| 4 | -22.3826456 | -3.0331333 |
| 5 | -22.4072480 | -3.1024853 |
| 6 | -22.4330523 | -3.1752379 |
| 7 | -22.4602194 | -3.2518265 |
| 8 | -22.4889200 | -3.3327583 |
| 9 | -22.5193689 | -3.4186172 |
| 10 | -22.5518055 | -3.5100939 |
| 11 | -22.5865233 | -3.6080021 |
| 12 | -22.6238606 | -3.7133142 |
| 13 | -22.6413391 | -3.7061434 |
| 14 | -22.6588037 | -3.6989862 |
| 15 | -22.6762550 | -3.6918418 |
| 16 | -22.6936924 | -3.6847111 |
| 17 | -22.7111230 | -3.6775898 |
| 18 | -22.7285502 | -3.6704796 |
| 19 | -22.7459674 | -3.6633770 |
| 20 | -22.7633877 | -3.6562830 |
| 21 | -22.7808080 | -3.6491958 |
| 22 | -22.7982352 | -3.6421138 |
| 23 | -22.8156660 | -3.6350369 |
| 24 | -22.7724855 | -3.5323825 |
| 25 | -22.7323480 | -3.4369247 |
| 26 | -22.6948502 | -3.3477207 |
| 27 | -22.6596611 | -3.2639792 |
| 28 | -22.6264901 | -3.1850307 |
| 29 | -22.5951054 | -3.1103067 |
| 30 | -22.5652952 | -3.0393137 |
| 31 | -22.5368781 | -2.9716308 |
| 32 | -22.5097041 | -2.9068866 |
| 33 | -22.4836299 | -2.8447558 |
| 34 | -22.4585359 | -2.7849541 |
| 35 | -22.4454732 | -2.7901194 |
| 36 | -22.4324138 | -2.7952864 |
| 37 | -22.4193578 | -2.8004535 |
| 38 | -22.4063020 | -2.8056222 |
| 39 | -22.3932462 | -2.8107935 |
| 40 | -22.3801901 | -2.8159657 |
| 41 | -22.3671274 | -2.8211421 |
| 42 | -22.3540578 | -2.8263246 |
| 43 | -22.3409815 | -2.8315104 |
| 44 | -22.3278949 | -2.8367022 |

**********
* PHOTO FRAME NUMBER 8 OF 8 *
********** FRAME 144

| | YEAR | MONTH | DAY | HOUR | MINUTE | SECOND |
|---|---|---|---|---|---|---|
| GMT | 67 | 2 | 20 | 15 | 11 | 9.300 |

| | | | | | | |
|---|---|---|---|---|---|---|
| LONGITUDE OF NADIR POINT | = | -21.9661865 DEG | LATITUDE OF NADIR POINT | = | -2.1167004 DEG |
| LONG OF CAMERA AXIS INTERSECT | = | -22.3701429 DEG | LATI OF CAMERA AXIS INTERSECT | = | -3.2425716 DEG |
| SPACECRAFT RADIUS | = | 1784.7545319 KM | SPACECRAFT ALTITUDE | = | 46.6645355 KM |
| MEAN ALTITUDE RATE | = | 0.0250367 KM/SEC | TIME FROM PERIAPSIS | = | 48.3359327 SEC |
| HORIZONTAL VELOCITY | = | 1.9157576 KM/SEC | TRUE ANOMALY | = | 2.9740765 DEG |
| SCALE FACTOR (HIGH) | = | 0.0102682 M/KM | TILT DISTANCE (HIGH) | = | 470.4151336 MM |
| SCALE FACTOR (LOW) | = | 0.0013466 M/KM | TILT DISTANCE (LOW) | = | 61.6937876 MM |
| IMAGE MOTION COMPENSATION (V/H) | = | 0.0322500 RAD/SEC | SWING ANGLE | = | 358.2150955 DEG |
| EMISSION ANGLE | = | 38.8344145 DEG | INCIDENCE ANGLE | = | 69.7172327 DEG |
| PHASE ANGLE | = | 62.2734871 DEG | NORTH DEVIATION ANGLE | = | 333.4955826 DEG |
| TILT ANGLE | = | 37.6384158 DEG | RESOLUTION CONSTANT | = | 1.2891332 MTR |
| TILT AZIMUTH | = | 199.7091179 DEG | SUN AZIMUTH AT PRINCIPAL GND PT | = | 90.3436689 DEG |
| SUN ANGLE AT NADIR | = | 69.3244181 DEG | SUN ARC AT NADIR | = | 2102.9835205 KM |
| LONGITUDE DISTANCE TO TARGET | = | 1.2168136 DEG | LATITUDE DISTANCE TO TARGET | = | 1.0332997 DEG |
| LONGITUDE ARC LENGTH TO TARGET | = | 36.9125175 KM | LATITUDE ARC LENGTH TO TARGET | = | 31.3455513 KM |
| FORWARD OVERLAP RATIO | = | 3.8114570 PCT | SIDE OVERLAP RATIO | = | 0. PCT |
| TIME BETWEEN PHOTOS | = | 2.7004480 SEC | ALPHA | = | 1.3093174 DEG. |

| | X | Y | Z | MAGNITUDE (KM) |
|---|---|---|---|---|
| DIRECTION COSINES TO TARGET | -0.86760301 | -0.23710070 | -0.43709070 | 67.69405651 |
| CAMERA AXIS | -0.83062168 | 0.11295402 | -0.54526049 | 59.40692139 |
| C1 | -0.87688930 | 0.23637334 | -0.41856039 | 52.89018250 |
| C2 | -0.72514631 | 0.06236379 | -0.68576498 | 70.83296204 |
| C3 | -0.75658977 | -0.01424088 | -0.65373474 | 70.64369202 |
| C4 | -0.90833276 | 0.15976866 | -0.38653018 | 52.78604126 |

| | X | Y | Z | X DOT | Y DOT | Z DOT |
|---|---|---|---|---|---|---|
| STATE VECTOR (1950.0) | -259.9976883 | -1605.6379089 | -734.6270370 | 1.7823106 | 0.0055662 | -0.7036774 |

LONG -21.6152 DEG
LATI -2.7138 DEG

LONG -21.9842 DEG
LATI -5.1196 DEG

(1) • 73.82414 KM • (2)

LOW RESOLUTION

30.91569 KM 61.94487 KM

(4) • 71.59160 KM • (3)

LONG -22.5648 DEG
LATI -2.3413 DEG

LONG -23.8661 DEG
LATI -4.3118 DEG

LONG -22.1561 DEG
LATI -2.9040 DEG

LONG -22.4656 DEG
LATI -3.7770 DEG

(1) • 28.09143 KM • (2)

HIGH RESOLUTION

4.69242 KM 6.28340 KM

(4) • 27.99849 KM • (3)

LONG -22.3000 DEG
LATI -2.8468 DEG

LONG -22.6575 DEG
LATI -3.6980 DEG

LOW RESOLUTION 144

| INDEX | LONGITUDE | LATITUDE |
|---|---|---|
| 1 | -21.6152191 | -2.7138177 |
| 2 | -21.6345828 | -2.8355496 |
| 3 | -21.6549299 | -2.9639699 |
| 4 | -21.6765680 | -3.1011150 |
| 5 | -21.6998761 | -3.2495179 |
| 6 | -21.7253320 | -3.4124325 |
| 7 | -21.7535748 | -3.5941565 |
| 8 | -21.7854481 | -3.8005631 |
| 9 | -21.8221569 | -4.0399757 |
| 10 | -21.8654432 | -4.3246955 |
| 11 | -21.9179845 | -4.6739026 |
| 12 | -21.9841793 | -5.1196058 |
| 13 | -22.1691203 | -5.0337204 |
| 14 | -22.3464148 | -4.9527442 |
| 15 | -22.5179687 | -4.8756434 |
| 16 | -22.6854587 | -4.8015529 |
| 17 | -22.8504043 | -4.7297223 |
| 18 | -23.0142264 | -4.6594884 |
| 19 | -23.1782978 | -4.5902448 |
| 20 | -23.3440118 | -4.5214161 |
| 21 | -23.5128131 | -4.4524449 |
| 22 | -23.6862624 | -4.3827649 |
| 23 | -23.8661013 | -4.3117822 |
| 24 | -23.6264708 | -3.9530393 |
| 25 | -23.4381695 | -3.6698264 |
| 26 | -23.2843261 | -3.4375863 |
| 27 | -23.1547678 | -3.2414165 |
| 28 | -23.0429404 | -3.0716564 |
| 29 | -22.9443877 | -2.9217218 |
| 30 | -22.8559639 | -2.7869340 |
| 31 | -22.7753611 | -2.6638488 |
| 32 | -22.7008266 | -2.5498496 |
| 33 | -22.6309948 | -2.4428854 |
| 34 | -22.5647657 | -2.3412991 |
| 35 | -22.4744058 | -2.3765481 |
| 36 | -22.3869281 | -2.4107118 |
| 37 | -22.3015714 | -2.4440867 |
| 38 | -22.2176282 | -2.4769458 |
| 39 | -22.1344502 | -2.5095412 |
| 40 | -22.0514019 | -2.5421204 |
| 41 | -21.9678619 | -2.5749300 |
| 42 | -21.8831811 | -2.6082238 |
| 43 | -21.7966871 | -2.6422680 |
| 44 | -21.7076418 | -2.6773556 |

HIGH RESOLUTION 144

| INDEX | LONGITUDE | LATITUDE |
|---|---|---|
| 1 | -22.1561086 | -2.9040444 |
| 2 | -22.1778731 | -2.9654043 |
| 3 | -22.2004809 | -3.0291598 |
| 4 | -22.2240486 | -3.0956082 |
| 5 | -22.2486818 | -3.1650823 |
| 6 | -22.2745237 | -3.2379638 |
| 7 | -22.3017216 | -3.3146899 |
| 8 | -22.3304629 | -3.3957659 |
| 9 | -22.3609529 | -3.4817819 |
| 10 | -22.3934336 | -3.5734268 |
| 11 | -22.4281962 | -3.6715160 |
| 12 | -22.4655845 | -3.7770288 |
| 13 | -22.4830768 | -3.7697845 |
| 14 | -22.5005517 | -3.7625565 |
| 15 | -22.5180132 | -3.7553421 |
| 16 | -22.5354574 | -3.7481405 |
| 17 | -22.5528984 | -3.7409509 |
| 18 | -22.5703256 | -3.7337698 |
| 19 | -22.5877492 | -3.7265989 |
| 20 | -22.6051731 | -3.7194375 |
| 21 | -22.6225970 | -3.7122829 |
| 22 | -22.6400208 | -3.7051342 |
| 23 | -22.6574514 | -3.6979907 |
| 24 | -22.6142335 | -3.5952041 |
| 25 | -22.5740616 | -3.4996249 |
| 26 | -22.5365298 | -3.4103048 |
| 27 | -22.5013065 | -3.3264549 |
| 28 | -22.4681118 | -3.2474040 |
| 29 | -22.4366963 | -3.1725818 |
| 30 | -22.4068551 | -3.1014975 |
| 31 | -22.3784108 | -3.0337241 |
| 32 | -22.3512096 | -2.9688953 |
| 33 | -22.3251116 | -2.9066826 |
| 34 | -22.2999935 | -2.8468006 |
| 35 | -22.2869205 | -2.8519924 |
| 36 | -22.2738509 | -2.8571850 |
| 37 | -22.2607813 | -2.8623785 |
| 38 | -22.2477186 | -2.8675729 |
| 39 | -22.2346492 | -2.8727707 |
| 40 | -22.2215796 | -2.8779710 |
| 41 | -22.2085030 | -2.8831748 |
| 42 | -22.1954198 | -2.8883828 |
| 43 | -22.1823263 | -2.8935976 |
| 44 | -22.1692262 | -2.8988185 |

**********
* PHOTO FRAME NUMBER 1 OF 8 *
********** FRAME 145

| | YEAR | MONTH | DAY | HOUR | MINUTE | SECOND |
|---|---|---|---|---|---|---|
| GMT | 67 | 2 | 20 | 18 | 39 | 52.099 |

| | | | | | | |
|---|---|---|---|---|---|---|
| LONGITUDE OF NADIR POINT | = | -23.1053505 | DEG | LATITUDE OF NADIR POINT | = | -2.4259730 DEG |
| LONG OF CAMERA AXIS INTERSECT | = | -23.1803467 | DEG | LATI OF CAMERA AXIS INTERSECT | = | -2.6436648 DEG |
| SPACECRAFT RADIUS | = | 1785.508255C | KM | SPACECRAFT ALTITUDE | = | 47.4182587 KM |
| MEAN ALTITUDE RATE | = | 0.0315173 | KM/SEC | TIME FROM PERIAPSIS | = | 60.9257112 SEC |
| HORIZONTAL VELOCITY | = | 1.9150554 | KM/SEC | TRUE ANOMALY | = | 3.7467515 DEG |
| SCALE FACTOR (HIGH) | = | 0.0127233 | M/KM | TILT DISTANCE (HIGH) | = | 89.8171426 MM |
| SCALE FACTOR (LOW) | = | 0.0016686 | M/KM | TILT DISTANCE (LOW) | = | 11.7792571 MM |
| IMAGE MOTION COMPENSATION (V/H) | = | 0.0399466 | RAD/SEC | SWING ANGLE | = | 357.9354515 DEG |
| EMISSION ANGLE | = | 8.6063465 | DEG | INCIDENCE ANGLE | = | 68.7726221 DEG |
| PHASE ANGLE | = | 66.2848148 | DEG | NORTH DEVIATION ANGLE | = | 338.7400322 DEG |
| TILT ANGLE | = | 8.3761148 | DEG | RESOLUTION CONSTANT | = | 1.0403785 MTR |
| TILT AZIMUTH | = | 198.9914951 | DEG | SUN AZIMUTH AT PRINCIPAL GND PT | = | 90.5224991 DEG |
| SUN ANGLE AT NADIR | = | 68.6998358 | DEG | SUN ARC AT NADIR | = | 2084.0365601 KM |
| LONGITUDE DISTANCE TO TARGET | = | 0.0776496 | DEG | LATITUDE DISTANCE TO TARGET | = | 0.7240270 DEG |
| LONGITUDE ARC LENGTH TO TARGET | = | 2.3555309 | KM | LATITUDE ARC LENGTH TO TARGET | = | 21.9636440 KM |
| FORWARD OVERLAP RATIO | = | 0. | PCT | SIDE OVERLAP RATIO | = | 0. PCT |
| TIME BETWEEN PHOTOS | = | 0. | SEC | ALPHA | = | 2.2515444 DEG. |

| | X | Y | Z | MAGNITUDE (KM) |
|---|---|---|---|---|
| DIRECTION COSINES TO TARGET | -0.86736221 | 0.32128834 | -0.38007446 | 52.43795013 |
| CAMERA AXIS | -0.93312375 | 0.34657439 | -0.09574066 | 47.94371033 |
| C1 | -0.89429597 | 0.44422150 | 0.05387010 | 47.50271606 |
| C2 | -0.90905399 | 0.31391057 | -0.27400915 | 50.15847778 |
| C3 | -0.94976099 | 0.23734271 | -0.24215119 | 50.13307190 |
| C4 | -0.92600297 | 0.36765363 | 0.08572804 | 47.47993469 |

| | X | Y | Z | X DOT | Y DOT | Z DOT |
|---|---|---|---|---|---|---|
| STATE VECTOR (1950.0) | -236.1295490 | -1605.5742645 | -744.5897293 | 1.7844149 | 0.0250417 | -0.6954618 |

LONG -22.4793 DEG
LATI -2.2549 DEG

LONG -22.8869 DEG
LATI -3.5046 DEG

• 39.86906 KM •
(1) (2)

LOW RESOLUTION

31.14539 KM 35.26186 KM

(4) (3)
• 39.71357 KM •

LONG -23.4388 DEG
LATI -1.8878 DEG

LONG -23.9722 DEG
LATI -3.0836 DEG

LONG -23.0150 DEG
LATI -2.4078 DEG

LONG -23.2179 DEG
LATI -2.9458 DEG

• 17.44075 KM •
(1) (2)

HIGH RESOLUTION

4.21661 KM 4.45230 KM

(4) (3)
• 17.43195 KM •

LONG -23.1449 DEG
LATI -2.3579 DEG

LONG -23.3550 DEG
LATI -2.8928 DEG

LOW RESOLUTION 145

| INDEX | LONGITUDE | LATITUDE |
|---|---|---|
| 1 | -22.4793372 | -2.2549109 |
| 2 | -22.5154417 | -2.3643331 |
| 3 | -22.5505829 | -2.4710770 |
| 4 | -22.5851505 | -2.5763072 |
| 5 | -22.6195064 | -2.6811224 |
| 6 | -22.6540091 | -2.7866036 |
| 7 | -22.6890171 | -2.8938614 |
| 8 | -22.7249131 | -3.0040811 |
| 9 | -22.7621138 | -3.1185832 |
| 10 | -22.8011107 | -3.2388893 |
| 11 | -22.8424745 | -3.3668153 |
| 12 | -22.8869047 | -3.5045948 |
| 13 | -22.9916217 | -3.4633660 |
| 14 | -23.0926745 | -3.4237031 |
| 15 | -23.1909916 | -3.3852304 |
| 16 | -23.2874031 | -3.3476131 |
| 17 | -23.3826842 | -3.3105448 |
| 18 | -23.4775660 | -3.2737378 |
| 19 | -23.5727754 | -3.2369111 |
| 20 | -23.6690433 | -3.1997848 |
| 21 | -23.7671385 | -3.1620659 |
| 22 | -23.8678873 | -3.1234455 |
| 23 | -23.9722013 | -3.0835845 |
| 24 | -23.9129734 | -2.9521733 |
| 25 | -23.8580792 | -2.8300632 |
| 26 | -23.8065317 | -2.7151419 |
| 27 | -23.7575490 | -2.6056898 |
| 28 | -23.7104616 | -2.5002616 |
| 29 | -23.6647029 | -2.3976012 |
| 30 | -23.6197670 | -2.2965802 |
| 31 | -23.5751693 | -2.1961363 |
| 32 | -23.5304589 | -2.0952348 |
| 33 | -23.4851611 | -1.9928187 |
| 34 | -23.4387944 | -1.8877695 |
| 35 | -23.3468463 | -1.9232011 |
| 36 | -23.2579651 | -1.9574007 |
| 37 | -23.1713583 | -1.9906791 |
| 38 | -23.0863054 | -2.0233137 |
| 39 | -23.0021439 | -2.0555642 |
| 40 | -22.9182246 | -2.0876772 |
| 41 | -22.8339231 | -2.1198926 |
| 42 | -22.7485900 | -2.1524572 |
| 43 | -22.6615496 | -2.1856255 |
| 44 | -22.5720706 | -2.2196766 |

HIGH RESOLUTION 145

| INDEX | LONGITUDE | LATITUDE |
|---|---|---|
| 1 | -23.0149949 | -2.4077663 |
| 2 | -23.0328352 | -2.4550466 |
| 3 | -23.0506756 | -2.5023302 |
| 4 | -23.0685537 | -2.5497198 |
| 5 | -23.0865102 | -2.5973186 |
| 6 | -23.1045864 | -2.6452340 |
| 7 | -23.1228194 | -2.6935738 |
| 8 | -23.1412542 | -2.7424507 |
| 9 | -23.1599348 | -2.7919815 |
| 10 | -23.1789091 | -2.8422893 |
| 11 | -23.1982248 | -2.8935071 |
| 12 | -23.2179368 | -2.9457743 |
| 13 | -23.2304120 | -2.9409505 |
| 14 | -23.2428806 | -2.9361292 |
| 15 | -23.2553422 | -2.9313131 |
| 16 | -23.2678006 | -2.9264987 |
| 17 | -23.2802520 | -2.9216868 |
| 18 | -23.2927067 | -2.9168766 |
| 19 | -23.3051584 | -2.9120682 |
| 20 | -23.3176098 | -2.9072589 |
| 21 | -23.3300679 | -2.9024495 |
| 22 | -23.3425295 | -2.8976403 |
| 23 | -23.3549981 | -2.8928275 |
| 24 | -23.3345656 | -2.8408694 |
| 25 | -23.3145497 | -2.7899521 |
| 26 | -23.2948890 | -2.7399372 |
| 27 | -23.2755392 | -2.6906932 |
| 28 | -23.2564454 | -2.6420990 |
| 29 | -23.2375634 | -2.5940358 |
| 30 | -23.2188520 | -2.5463926 |
| 31 | -23.2002671 | -2.4990620 |
| 32 | -23.1817641 | -2.4519380 |
| 33 | -23.1633089 | -2.4049189 |
| 34 | -23.1448538 | -2.3578999 |
| 35 | -23.1330442 | -2.3624369 |
| 36 | -23.1212382 | -2.3669713 |
| 37 | -23.1094358 | -2.3715031 |
| 38 | -23.0976367 | -2.3760341 |
| 39 | -23.0858409 | -2.3805642 |
| 40 | -23.0740418 | -2.3850943 |
| 41 | -23.0622461 | -2.3896253 |
| 42 | -23.0504434 | -2.3941571 |
| 43 | -23.0386341 | -2.3986907 |
| 44 | -23.0268178 | -2.4032268 |

**********
* PHOTO FRAME NUMBER 2 OF 3 *
********** FRAME 140

| | YEAR | MONTH | DAY | HOUR | MINUTE | SECOND |
|---|---|---|---|---|---|---|
| GMT | 67 | 2 | 20 | 18 | 39 | 54.299 |

| | | | | | | |
|---|---|---|---|---|---|---|
| LONGITUDE OF NADIR POINT | = | -22.9792213 | DEG | LATITUDE OF NADIR POINT | = | -2.4742317 DEG |
| LONG OF CAMERA AXIS INTERSECT | = | -23.0508566 | DEG | LATI OF CAMERA AXIS INTERSECT | = | -2.6335773 DEG |
| SPACECRAFT RADIUS | = | 1785.5788574 | KM | SPACECRAFT ALTITUDE | = | 47.4888611 KM |
| MEAN ALTITUDE RATE | = | 0.0326527 | KM/SEC | TIME FROM PERIAPSIS | = | 63.1254883 SEC |
| HORIZONTAL VELOCITY | = | 1.9149798 | KM/SEC | TRUE ANOMALY | = | 3.8819291 DEG |
| SCALE FACTOR (HIGH) | = | 0.0127041 | M/KM | TILT DISTANCE (HIGH) | = | 89.8781290 MM |
| SCALE FACTOR (LOW) | = | 0.0016661 | M/KM | TILT DISTANCE (LOW) | = | 11.7872956 MM |
| IMAGE MOTION COMPENSATION (V/H) | = | 0.0398862 | RAD/SEC | SWING ANGLE | = | 357.0081863 DEG |
| EMISSION ANGLE | = | 8.6124490 | DEG | INCIDENCE ANGLE | = | 68.6425200 DEG |
| PHASE ANGLE | = | 66.2848148 | DEG | NORTH DEVIATION ANGLE | = | 338.7437096 DEG |
| TILT ANGLE | = | 8.3817217 | DEG | RESOLUTION CONSTANT | = | 1.0419434 MTR |
| TILT AZIMUTH | = | 198.0687656 | DEG | SUN AZIMUTH AT PRINCIPAL GND PT | = | 90.4974537 DEG |
| SUN ANGLE AT NADIR | = | 68.5730190 | DEG | SUN ARC AT NADIR | = | 2080.1895142 KM |
| LONGITUDE DISTANCE TO TARGET | = | 0.2037787 | DEG | LATITUDE DISTANCE TO TARGET | = | 0.6757683 DEG |
| LONGITUDE ARC LENGTH TO TARGET | = | 6.1817083 | KM | LATITUDE ARC LENGTH TO TARGET | = | 20.4996967 KM |
| FORWARD OVERLAP RATIO | = | 2.9607697 | PCT | SIDE OVERLAP RATIO | = | 0. PCT |
| TIME BETWEEN PHOTOS | = | 2.2002697 | SEC | ALPHA | = | 2.1174572 DEG. |

| | X | Y | Z | MAGNITUDE (KM) |
|---|---|---|---|---|
| DIRECTION COSINES TO TARGET | -0.90066839 | 0.25351300 | -0.35288469 | 52.21184492 |
| CAMERA AXIS | -0.93312187 | 0.34657945 | -0.09574058 | 48.01582336 |
| C1 | -0.89429355 | 0.44422634 | 0.05387018 | 47.57933044 |
| C2 | -0.90905230 | 0.31391552 | -0.27400908 | 50.23971558 |
| C3 | -0.94075972 | 0.23734783 | -0.24215113 | 50.20280457 |
| C4 | -0.92600098 | 0.36765864 | 0.08572812 | 47.54626465 |

| | X | Y | Z | X DOT | Y DOT | Z DOT |
|---|---|---|---|---|---|---|
| STATE VECTOR (1950.0) | -232.2015820 | -1605.5157928 | -746.1188736 | 1.7848589 | 0.0283856 | -0.6940488 |

LONG -22.3483 DEG
LATI -2.3040 DEG

LONG -22.7566 DEG
LATI -3.5568 DEG

(1) • 39.96449 KM • (2)

LOW RESOLUTION

31.19305 KM 35.31610 KM

(4) • 39.73872 KM • (3)

LONG -23.3095 DEG
LATI -1.9370 DEG

LONG -23.8431 DEG
LATI -3.1336 DEG

LONG -22.8853 DEG
LATI -2.4573 DEG

LONG -23.0885 DEG
LATI -2.9962 DEG

(1) • 17.46899 KM • (2)

HIGH RESOLUTION

4.22303 KM 4.45909 KM

(4) • 17.45620 KM • (3)

LONG -23.0153 DEG
LATI -2.4074 DEG

LONG -23.2257 DEG
LATI -2.9431 DEG

LOW RESOLUTION 146

| INDEX | LONGITUDE | LATITUDE |
|---|---|---|
| 1 | -22.3482897 | -2.3040311 |
| 2 | -22.3844624 | -2.4137103 |
| 3 | -22.4196756 | -2.5207060 |
| 4 | -22.4543080 | -2.6261855 |
| 5 | -22.4887321 | -2.7312509 |
| 6 | -22.5232997 | -2.8369856 |
| 7 | -22.5583761 | -2.9445047 |
| 8 | -22.5943370 | -3.0549950 |
| 9 | -22.6316164 | -3.1697814 |
| 10 | -22.6706884 | -3.2903889 |
| 11 | -22.7121305 | -3.4186403 |
| 12 | -22.7566462 | -3.5567749 |
| 13 | -22.8616502 | -3.5152712 |
| 14 | -22.9629452 | -3.4753581 |
| 15 | -23.0614605 | -3.4366540 |
| 16 | -23.1580360 | -3.3988242 |
| 17 | -23.2534504 | -3.3615595 |
| 18 | -23.3484344 | -3.3245681 |
| 19 | -23.4437120 | -3.2875689 |
| 20 | -23.5400212 | -3.2502795 |
| 21 | -23.6381230 | -3.2124070 |
| 22 | -23.7388411 | -3.1736431 |
| 23 | -23.8430936 | -3.1336472 |
| 24 | -23.7838554 | -3.0021541 |
| 25 | -23.7289476 | -2.8799672 |
| 26 | -23.6773865 | -2.7649715 |
| 27 | -23.6283867 | -2.6554452 |
| 28 | -23.5812857 | -2.5499444 |
| 29 | -23.5355098 | -2.4472132 |
| 30 | -23.4905536 | -2.3461196 |
| 31 | -23.4459422 | -2.2456022 |
| 32 | -23.4012077 | -2.1446238 |
| 33 | -23.3558929 | -2.0421301 |
| 34 | -23.3095024 | -1.9369981 |
| 35 | -23.2175200 | -1.9723682 |
| 36 | -23.1285808 | -2.0065191 |
| 37 | -23.0418921 | -2.0397608 |
| 38 | -22.9567332 | -2.0723681 |
| 39 | -22.8724384 | -2.1046007 |
| 40 | -22.7883692 | -2.1367034 |
| 41 | -22.7038898 | -2.1689188 |
| 42 | -22.6183519 | -2.2014920 |
| 43 | -22.5310760 | -2.2346790 |
| 44 | -22.4413307 | -2.2687566 |

HIGH RESOLUTION 146

| INDEX | LONGITUDE | LATITUDE |
|---|---|---|
| 1 | -22.8852623 | -2.4573048 |
| 2 | -22.9031265 | -2.5046636 |
| 3 | -22.9209909 | -2.5520250 |
| 4 | -22.9388928 | -2.5994931 |
| 5 | -22.9568768 | -2.6471704 |
| 6 | -22.9749768 | -2.6951661 |
| 7 | -22.9932337 | -2.7435853 |
| 8 | -23.0116959 | -2.7925424 |
| 9 | -23.0304036 | -2.8421561 |
| 10 | -23.0494018 | -2.8925484 |
| 11 | -23.0687416 | -2.9438516 |
| 12 | -23.0884807 | -2.9962067 |
| 13 | -23.1009767 | -2.9913641 |
| 14 | -23.1134622 | -2.9865266 |
| 15 | -23.1259444 | -2.9816934 |
| 16 | -23.1384163 | -2.9768628 |
| 17 | -23.1508882 | -2.9720338 |
| 18 | -23.1633532 | -2.9672074 |
| 19 | -23.1758218 | -2.9623828 |
| 20 | -23.1882904 | -2.9575581 |
| 21 | -23.2007623 | -2.9527334 |
| 22 | -23.2132375 | -2.9479070 |
| 23 | -23.2257197 | -2.9430806 |
| 24 | -23.2052667 | -2.8910466 |
| 25 | -23.1852269 | -2.8400566 |
| 26 | -23.1655424 | -2.7899700 |
| 27 | -23.1461685 | -2.7406560 |
| 28 | -23.1270542 | -2.6919918 |
| 29 | -23.1081517 | -2.6438603 |
| 30 | -23.0894165 | -2.5961489 |
| 31 | -23.0708110 | -2.5487499 |
| 32 | -23.0522876 | -2.5015585 |
| 33 | -23.0338085 | -2.4544720 |
| 34 | -23.0153329 | -2.4073864 |
| 35 | -23.0035028 | -2.4119267 |
| 36 | -22.9916799 | -2.4164645 |
| 37 | -22.9798603 | -2.4210023 |
| 38 | -22.9680440 | -2.4255367 |
| 39 | -22.9562311 | -2.4300720 |
| 40 | -22.9444151 | -2.4346072 |
| 41 | -22.9325953 | -2.4391425 |
| 42 | -22.9207723 | -2.4436794 |
| 43 | -22.9089425 | -2.4482181 |
| 44 | -22.8971057 | -2.4527602 |

**********
* PHOTO FRAME NUMBER 3 OF 8 *
********** FRAME 147

| | YEAR | MONTH | DAY | HOUR | MINUTE | SECOND |
|---|---|---|---|---|---|---|
| GMT | 67 | 2 | 20 | 18 | 39 | 56.399 |

| | | | | | |
|---|---|---|---|---|---|
| LONGITUDE OF NADIR POINT | = | -22.8588791 | DEG | LATITUDE OF NADIR POINT | = -2.5202621 DEG |
| LONG OF CAMERA AXIS INTERSECT | = | -22.9273019 | DEG | LATI OF CAMERA AXIS INTERSECT | = -2.7411999 DEG |
| SPACECRAFT RADIUS | = | 1785.6485748 | KM | SPACECRAFT ALTITUDE | = 47.5585785 KM |
| MEAN ALTITUDE RATE | = | 0.0337357 | KM/SEC | TIME FROM PERIAPSIS | = 65.2243719 SEC |
| HORIZONTAL VELOCITY | = | 1.9149051 | KM/SEC | TRUE ANOMALY | = 4.0108967 DEG |
| SCALE FACTOR (HIGH) | = | 0.0126853 | M/KM | TILT DISTANCE (HIGH) | = 89.9582453 MM |
| SCALE FACTOR (LOW) | = | 0.0016636 | M/KM | TILT DISTANCE (LOW) | = 11.7978027 MM |
| IMAGE MOTION COMPENSATION (V/H) | = | 0.0398263 | RAD/SEC | SWING ANGLE | = 356.1249466 DEG |
| EMISSION ANGLE | = | 8.6203618 | DEG | INCIDENCE ANGLE | = 68.5184126 DEG |
| PHASE ANGLE | = | 66.2848148 | DEG | NORTH DEVIATION ANGLE | = 338.7474327 DEG |
| TILT ANGLE | = | 8.3890868 | DEG | RESOLUTION CONSTANT | = 1.0434936 MIR |
| TILT AZIMUTH | = | 197.1897163 | DEG | SUN AZIMUTH AT PRINCIPAL GND PT | = 90.4733114 DEG |
| SUN ANGLE AT NADIR | = | 68.4520473 | DEG | SUN ARC AT NADIR | = 2076.5197754 KM |
| LONGITUDE DISTANCE TO TARGET | = | 0.3241210 | DEG | LATITUDE DISTANCE TO TARGET | = 0.6297379 DEG |
| LONGITUDE ARC LENGTH TO TARGET | = | 9.8323380 | KM | LATITUDE ARC LENGTH TO TARGET | = 19.1033480 KM |
| FORWARD OVERLAP RATIO | = | 7.5495664 | PCT | SIDE OVERLAP RATIO | = 0. PCT |
| TIME BETWEEN PHOTOS | = | 2.0998478 | SEC | ALPHA | = 1.9895070 DEG. |

| | X | Y | Z | MAGNITUDE (KM) |
|---|---|---|---|---|
| DIRECTION COSINES TO TARGET | -0.92708510 | 0.18713532 | -0.32479778 | 52.30505943 |
| CAMERA AXIS | -0.93312008 | 0.34658429 | -0.09574052 | 48.08726501 |
| C1 | -0.89429126 | 0.44423097 | 0.05387024 | 47.65505981 |
| C2 | -0.90905068 | 0.31392024 | -0.27400902 | 50.31999207 |
| C3 | -0.94075849 | 0.23735271 | -0.24215107 | 50.27207947 |
| C4 | -0.92599907 | 0.36766343 | 0.08572818 | 47.61215210 |

| | X | Y | Z | X DOT | Y DOT | Z DOT |
|---|---|---|---|---|---|---|
| STATE VECTOR (1950.0) | -228.4529285 | -1605.4537659 | -747.5749664 | 1.7852756 | 0.0309894 | -0.6926981 |

LONG -22.2232 DEG
LATI -2.3509 DEG

LONG -22.6323 DEG
LATI -3.6066 DEG

(1) • 40.05792 KM • (2)

LONG -22.7615 DEG
LATI -2.5046 DEG

LONG -22.9650 DEG
LATI -3.0443 DEG

(1) • 17.49689 KM • (2)

LOW RESOLUTION

31.24045 KM 35.37014 KM

HIGH RESOLUTION

4.22940 KM 4.46583 KM

(4) • 39.76489 KM • (3)

(4) • 17.48030 KM • (3)

LONG -23.1862 DEG
LATI -1.9839 DEG

LONG -23.7200 DEG
LATI -3.1814 DEG

LONG -22.8918 DEG
LATI -2.4546 DEG

LONG -23.1024 DEG
LATI -2.9910 DEG

LOW RESOLUTION 147

| INDEX | LONGITUDE | LATITUDE |
|---|---|---|
| 1 | -22.2232120 | -2.3508768 |
| 2 | -22.2594528 | -2.4608070 |
| 3 | -22.2947273 | -2.5680478 |
| 4 | -22.3294282 | -2.6737723 |
| 5 | -22.3639171 | -2.7790827 |
| 6 | -22.3985498 | -2.8850667 |
| 7 | -22.4336910 | -2.9928403 |
| 8 | -22.4697237 | -3.1035961 |
| 9 | -22.5070677 | -3.2186600 |
| 10 | -22.5462151 | -3.3395629 |
| 11 | -22.5877390 | -3.4681318 |
| 12 | -22.6323402 | -3.6066139 |
| 13 | -22.7376242 | -3.5648456 |
| 14 | -22.8391550 | -3.5246892 |
| 15 | -22.9378684 | -3.4857639 |
| 16 | -23.0346110 | -3.4477283 |
| 17 | -23.1301517 | -3.4102724 |
| 18 | -23.2252383 | -3.3731017 |
| 19 | -23.3205876 | -3.3359360 |
| 20 | -23.4169412 | -3.2984887 |
| 21 | -23.5150568 | -3.2604684 |
| 22 | -23.6157577 | -3.2215637 |
| 23 | -23.7199557 | -3.1814363 |
| 24 | -23.6607003 | -3.0498613 |
| 25 | -23.6057754 | -2.9275923 |
| 26 | -23.5542006 | -2.8125190 |
| 27 | -23.5051804 | -2.7029175 |
| 28 | -23.4580624 | -2.5973425 |
| 29 | -23.4122694 | -2.4945353 |
| 30 | -23.3672960 | -2.3933665 |
| 31 | -23.3226607 | -2.2927732 |
| 32 | -23.2779093 | -2.1917163 |
| 33 | -23.2325704 | -2.0891414 |
| 34 | -23.1861558 | -1.9839266 |
| 35 | -23.0941396 | -2.0192404 |
| 36 | -23.0051353 | -2.0533486 |
| 37 | -22.9183612 | -2.0865544 |
| 38 | -22.8330965 | -2.1191370 |
| 39 | -22.7486753 | -2.1513542 |
| 40 | -22.6644559 | -2.1834501 |
| 41 | -22.5797989 | -2.2156664 |
| 42 | -22.4940596 | -2.2482498 |
| 43 | -22.4065580 | -2.2814556 |
| 44 | -22.3165498 | -2.3155630 |

HIGH RESOLUTION 147

| INDEX | LONGITUDE | LATITUDE |
|---|---|---|
| 1 | -22.7614717 | -2.5045586 |
| 2 | -22.7793601 | -2.5519943 |
| 3 | -22.7972484 | -2.5994333 |
| 4 | -22.8151741 | -2.6469783 |
| 5 | -22.8331819 | -2.6947350 |
| 6 | -22.8513060 | -2.7428075 |
| 7 | -22.8695903 | -2.7913070 |
| 8 | -22.8880761 | -2.8403435 |
| 9 | -22.9068079 | -2.8900383 |
| 10 | -22.9258335 | -2.9405142 |
| 11 | -22.9452004 | -2.9919020 |
| 12 | -22.9649637 | -3.0443433 |
| 13 | -22.9774799 | -3.0394836 |
| 14 | -22.9899826 | -3.0346299 |
| 15 | -23.0024819 | -3.0297788 |
| 16 | -23.0149744 | -3.0249311 |
| 17 | -23.0274565 | -3.020C876 |
| 18 | -23.0399420 | -3.0152450 |
| 19 | -23.0524242 | -3.0104041 |
| 20 | -23.0649097 | -3.0055649 |
| 21 | -23.0773954 | -3.0007240 |
| 22 | -23.0898843 | -2.9958831 |
| 23 | -23.1023803 | -2.9910414 |
| 24 | -23.0819032 | -2.9389339 |
| 25 | -23.0618396 | -2.8878714 |
| 26 | -23.0421345 | -2.8377139 |
| 27 | -23.0227401 | -2.7883291 |
| 28 | -23.0036020 | -2.7395957 |
| 29 | -22.9846790 | -2.6913959 |
| 30 | -22.9659233 | -2.6436178 |
| 31 | -22.9472904 | -2.5961514 |
| 32 | -22.9287465 | -2.5488934 |
| 33 | -22.9102471 | -2.5017386 |
| 34 | -22.8917508 | -2.4545855 |
| 35 | -22.8799038 | -2.4591310 |
| 36 | -22.8680637 | -2.4636731 |
| 37 | -22.8562269 | -2.4682143 |
| 38 | -22.8443904 | -2.4727547 |
| 39 | -22.8325570 | -2.4772942 |
| 40 | -22.8207238 | -2.4818329 |
| 41 | -22.8088870 | -2.4863741 |
| 42 | -22.7970400 | -2.4909162 |
| 43 | -22.7851930 | -2.4954599 |
| 44 | -22.7733359 | -2.5000080 |

**********
* PHOTO FRAME NUMBER 4 OF 8 *
********** FRAME 148

| | YEAR | MONTH | DAY | HOUR | MINUTE | SECOND |
|---|---|---|---|---|---|---|
| GMT | 67 | 2 | 20 | 18 | 39 | 58.599 |

| | | | | | |
|---|---|---|---|---|---|
| LONGITUDE OF NADIR POINT | = | -22.7328682 | DEG | LATITUDE OF NADIR POINT | = | -2.5684456 | DEG |
| LONG OF CAMERA AXIS INTERSECT | = | -22.7979143 | DEG | LATI OF CAMERA AXIS INTERSECT | = | -2.7910671 | DEG |
| SPACECRAFT RADIUS | = | 1785.7239990 | KM | SPACECRAFT ALTITUDE | = | 47.6340027 | KM |
| MEAN ALTITUDE RATE | = | 0.0348696 | KM/SEC | TIME FROM PERIAPSIS | = | 67.4221783 | SEC |
| HORIZONTAL VELOCITY | = | 1.9148244 | KM/SEC | TRUE ANOMALY | = | 4.1459301 | DEG |
| SCALE FACTOR (HIGH) | = | 0.0126648 | M/KM | TILT DISTANCE (HIGH) | = | 90.0649738 | MM |
| SCALE FACTOR (LOW) | = | 0.0016610 | M/KM | TILT DISTANCE (LOW) | = | 11.8117998 | MM |
| IMAGE MOTION COMPENSATION (V/H) | = | 0.0397615 | RAD/SEC | SWING ANGLE | = | 355.2020836 | DEG |
| EMISSION ANGLE | = | 8.6308163 | DEG | INCIDENCE ANGLE | = | 68.3884716 | DEG |
| PHASE ANGLE | = | 66.2848167 | DEG | NORTH DEVIATION ANGLE | = | 338.7515564 | DEG |
| TILT ANGLE | = | 8.3988979 | DEG | RESOLUTION CONSTANT | = | 1.0451764 | MTR |
| TILT AZIMUTH | = | 196.2710724 | DEG | SUN AZIMUTH AT PRINCIPAL GND PT | = | 90.4477739 | DEG |
| SUN ANGLE AT NADIR | = | 68.3253965 | DEG | SUN ARC AT NADIR | = | 2072.6777954 | KM |
| LONGITUDE DISTANCE TO TARGET | = | 0.4501319 | DEG | LATITUDE DISTANCE TO TARGET | = | 0.5815544 | DEG |
| LONGITUDE ARC LENGTH TO TARGET | = | 13.6549280 | KM | LATITUDE ARC LENGTH TO TARGET | = | 17.6416810 | KM |
| FORWARD OVERLAP RATIO | = | 3.3440907 | PCT | SIDE OVERLAP RATIO | = | 0. | PCT |
| TIME BETWEEN PHOTOS | = | 2.1996260 | SEC | ALPHA | = | 1.8554951 | DEG. |

| DIRECTION COSINES TO TARGET | X | Y | Z | MAGNITUDE (KM) |
|---|---|---|---|---|
| CAMERA AXIS | -0.94869769 | 0.11710848 | -0.29369760 | 52.72428656 |
| C1 | -0.93311822 | 0.34658932 | -0.09574044 | 48.16481018 |
| C2 | -0.89428885 | 0.44423578 | 0.05387033 | 47.73706055 |
| C3 | -0.90904901 | 0.31392515 | -0.27400894 | 50.40693665 |
| C4 | -0.94075724 | 0.23735780 | -0.24215100 | 50.34745789 |
| | -0.92599709 | 0.36766842 | 0.08572827 | 47.68380737 |

| | X | Y | Z | X DOT | Y DOT | Z DOT |
|---|---|---|---|---|---|---|
| STATE VECTOR (1950.0) | -224.5266247 | -1605.3822784 | -749.0966492 | 1.7857046 | 0.0340297 | -0.6912811 |

LONG -22.0922 DEG
LATI -2.3999 DEG

LONG -22.5021 DEG
LATI -3.6589 DEG

(1) * 40.15822 KM * (2)

LOW RESOLUTION

31.29210 KM 35.42909 KM

(4) * 39.79450 KM * (3)

LONG -23.0570 DEG
LATI -2.0330 DEG

LONG -23.5910 DEG
LATI -3.2315 DEG

LONG -22.6318 DEG
LATI -2.5540 DEG

LONG -22.8356 DEG
LATI -3.0948 DEG

(1) * 17.52711 KM * (2)

HIGH RESOLUTION

4.23633 KM 4.47317 KM

(4) * 17.50652 KM * (3)

LONG -22.7623 DEG
LATI -2.5040 DEG

LONG -22.9732 DEG
LATI -3.0413 DEG

LOW RESOLUTION 148

| INDEX | LONGITUDE | LATITUDE |
|---|---|---|
| 1 | -22.0921817 | -2.3999082 |
| 2 | -22.1284976 | -2.5101056 |
| 3 | -22.1638439 | -2.6176119 |
| 4 | -22.1986129 | -2.7235976 |
| 5 | -22.2331738 | -2.8291719 |
| 6 | -22.2678781 | -2.9354240 |
| 7 | -22.3030875 | -3.0434716 |
| 8 | -22.3391919 | -3.1545100 |
| 9 | -22.3766146 | -3.2698728 |
| 10 | -22.4158404 | -3.3910933 |
| 11 | -22.4574463 | -3.5200028 |
| 12 | -22.5021398 | -3.6588580 |
| 13 | -22.6077278 | -3.6168071 |
| 14 | -22.7095110 | -3.5763937 |
| 15 | -22.8084395 | -3.5372328 |
| 16 | -22.9053566 | -3.4989795 |
| 17 | -23.0010440 | -3.4613195 |
| 18 | -23.0962398 | -3.4239610 |
| 19 | -23.1916714 | -3.3866161 |
| 20 | -23.2880759 | -3.3490022 |
| 21 | -23.3862121 | -3.3108240 |
| 22 | -23.4869027 | -3.2717716 |
| 23 | -23.5910494 | -3.2315033 |
| 24 | -23.5317771 | -3.0998326 |
| 25 | -23.4768317 | -2.9774741 |
| 26 | -23.4252365 | -2.8623128 |
| 27 | -23.3761957 | -2.7526251 |
| 28 | -23.3290570 | -2.6469655 |
| 29 | -23.2832437 | -2.5440755 |
| 30 | -23.2382462 | -2.4428214 |
| 31 | -23.1935906 | -2.3421427 |
| 32 | -23.1488118 | -2.2409995 |
| 33 | -23.1034491 | -2.1383350 |
| 34 | -23.0570073 | -2.0330237 |
| 35 | -22.9649465 | -2.0682811 |
| 36 | -22.8758740 | -2.1023441 |
| 37 | -22.7890043 | -2.1355175 |
| 38 | -22.7036202 | -2.1680762 |
| 39 | -22.6190588 | -2.2002780 |
| 40 | -22.5346754 | -2.2323679 |
| 41 | -22.4498308 | -2.2645867 |
| 42 | -22.3638797 | -2.2971821 |
| 43 | -22.2761288 | -2.3304093 |
| 44 | -22.1858370 | -2.3645500 |

HIGH RESOLUTION 148

| INDEX | LONGITUDE | LATITUDE |
|---|---|---|
| 1 | -22.6318212 | -2.5540262 |
| 2 | -22.6497402 | -2.6015447 |
| 3 | -22.6676557 | -2.6490675 |
| 4 | -22.6856089 | -2.6966961 |
| 5 | -22.7036407 | -2.7445364 |
| 6 | -22.7217917 | -2.7926953 |
| 7 | -22.7401035 | -2.8412792 |
| 8 | -22.7586167 | -2.8904037 |
| 9 | -22.7773759 | -2.9401864 |
| 10 | -22.7964287 | -2.9907511 |
| 11 | -22.8158231 | -3.0422311 |
| 12 | -22.8356168 | -3.0947655 |
| 13 | -22.8481538 | -3.0898887 |
| 14 | -22.8606768 | -3.0850154 |
| 15 | -22.8731933 | -3.0801472 |
| 16 | -22.8857062 | -3.0752832 |
| 17 | -22.8982089 | -3.0704218 |
| 18 | -22.9107080 | -3.0655622 |
| 19 | -22.9232106 | -3.0607059 |
| 20 | -22.9357100 | -3.0558488 |
| 21 | -22.9482126 | -3.0509925 |
| 22 | -22.9607153 | -3.0461354 |
| 23 | -22.9732282 | -3.0412774 |
| 24 | -22.9527240 | -2.9890897 |
| 25 | -22.9326363 | -2.9379486 |
| 26 | -22.9129074 | -2.8877134 |
| 27 | -22.8934858 | -2.8382535 |
| 28 | -22.8743236 | -2.7894441 |
| 29 | -22.8553801 | -2.7411692 |
| 30 | -22.8365970 | -2.6933177 |
| 31 | -22.8179438 | -2.6457787 |
| 32 | -22.7993760 | -2.5984472 |
| 33 | -22.7808526 | -2.5512199 |
| 34 | -22.7623291 | -2.5039943 |
| 35 | -22.7504683 | -2.5085440 |
| 36 | -22.7386076 | -2.5130912 |
| 37 | -22.7267506 | -2.5176367 |
| 38 | -22.7148967 | -2.5221813 |
| 39 | -22.7030430 | -2.5267260 |
| 40 | -22.6911857 | -2.5312706 |
| 41 | -22.6793284 | -2.5358178 |
| 42 | -22.6674645 | -2.5403650 |
| 43 | -22.6555936 | -2.5449156 |
| 44 | -22.6437125 | -2.5494688 |

PHOTO FRAME NUMBER 5 OF 8

## FRAME 149

| | YEAR | MONTH | DAY | HOUR | MINUTE | SECOND |
|---|---|---|---|---|---|---|
| GMT | 67 | 2 | 20 | 18 | 40 | 0.699 |

| | | | | | |
|---|---|---|---|---|---|
| LONGITUDE OF NADIR POINT | = | -22.6124735 DEG | LATITUDE OF NADIR POINT | = | -2.6144666 DEG |
| LONG OF CAMERA AXIS INTERSECT | = | -22.6742914 DEG | LATI OF CAMERA AXIS INTERSECT | = | -2.8387128 DEG |
| SPACECRAFT RADIUS | = | 1785.7984039 KM | SPACECRAFT ALTITUDE | = | 47.7084045 KM |
| MEAN ALTITUDE RATE | = | 0.0359526 KM/SEC | TIME FROM PERIAPSIS | = | 69.5220442 SEC |
| HORIZONTAL VELOCITY | = | 1.7147447 KM/SEC | TRUE ANOMALY | = | 4.2749362 DEG |
| SCALE FACTOR (HIGH) | = | 0.0126447 M/KM | TILT DISTANCE (HIGH) | = | 90.1887302 MM |
| SCALE FACTOR (LOW) | = | 0.0016583 M/KM | TILT DISTANCE (LOW) | = | 11.8280301 MM |
| IMAGE MOTION COMPENSATION (V/H) | = | 0.0396974 RAD/SEC | SWING ANGLE | = | 354.3225250 DEG |
| EMISSION ANGLE | = | 8.6428694 DEG | INCIDENCE ANGLE | = | 68.2643414 DEG |
| PHASE ANGLE | = | 66.2848177 DEG | NORTH DEVIATION ANGLE | = | 338.7357106 DEG |
| TILT ANGLE | = | 8.4102737 DEG | RESOLUTION CONSTANT | = | 1.0468406 MTR |
| TILT AZIMUTH | = | 195.3955593 DEG | SUN AZIMUTH AT PRINCIPAL GND PT | = | 90.4231272 DEG |
| SUN ANGLE AT NADIR | = | 68.2044144 DEG | SUN ARC AT NADIR | = | 2069.0377515 KM |
| LONGITUDE DISTANCE TO TARGET | = | 0.5705276 DEG | LATITUDE DISTANCE TO TARGET | = | 0.5355334 DEG |
| LONGITUDE ARC LENGTH TO TARGET | = | 17.3071775 KM | LATITUDE ARC LENGTH TO TARGET | = | 16.2456172 KM |
| FORWARD OVERLAP RATIO | = | 7.7991200 PCT | SIDE OVERLAP RATIO | = | 0. PCT |
| TIME BETWEEN PHOTOS | = | 2.1304915 SEC | ALPHA | = | 1.7274329 DEG. |

| | X | Y | Z | MAGNITUDE (KM) |
|---|---|---|---|---|
| DIRECTION COSINES TO TARGET | -0.96346281 | 0.05089801 | -0.26296160 | 53.42508554 |
| CAMERA AXIS | -0.93311643 | 0.34659416 | -0.09574038 | 48.24150085 |
| C1 | -0.89428656 | 0.44424041 | 0.05387040 | 47.81803894 |
| C2 | -0.90904740 | 0.31392989 | -0.27400889 | 50.49276733 |
| C3 | -0.94075602 | 0.23736268 | -0.24215094 | 50.42222595 |
| C4 | -0.92599518 | 0.36767320 | 0.08572833 | 47.75485229 |

| | X | Y | Z | X DOT | Y DOT | Z DOT |
|---|---|---|---|---|---|---|
| STATE VECTOR (1950.0) | -220.7744656 | -1605.3077240 | -750.5475998 | 1.7861075 | 0.0369339 | -0.6899247 |

LONG -21.9669 DEG
LATI -2.4467 DEG

(1)

40.25642 KM

LONG -22.3777 DEG
LATI -3.7088 DEG

(2)

LOW RESOLUTION

31.34339 KM

35.48768 KM

(4)

39.82491 KM

(3)

LONG -22.9336 DEG
LATI -2.0799 DEG

LONG -23.4679 DEG
LATI -3.2794 DEG

LONG -22.5079 DEG
LATI -2.6013 DEG

(1)

17.55695 KM

LONG -22.7120 DEG
LATI -3.1430 DEG

(2)

HIGH RESOLUTION

4.24322 KM

4.48045 KM

(4)

17.53252 KM

(3)

LONG -22.6387 DEG
LATI -2.5512 DEG

LONG -22.8498 DEG
LATI -3.0893 DEG

LOW RESOLUTION 149

| INDEX | LONGITUDE | LATITUDE |
|---|---|---|
| 1 | -21.9669433 | -2.4467308 |
| 2 | -22.0033309 | -2.5571920 |
| 3 | -22.0387490 | -2.6649570 |
| 4 | -22.0735865 | -2.7712007 |
| 5 | -22.1082153 | -2.8770327 |
| 6 | -22.1429880 | -2.9835452 |
| 7 | -22.1782658 | -3.0918609 |
| 8 | -22.2144420 | -3.2031785 |
| 9 | -22.2519398 | -3.3188324 |
| 10 | -22.2912440 | -3.4403637 |
| 11 | -22.3329320 | -3.5696062 |
| 12 | -22.3777142 | -3.7088259 |
| 13 | -22.4835992 | -3.6665018 |
| 14 | -22.5856354 | -3.6258400 |
| 15 | -22.6847723 | -3.5864503 |
| 16 | -22.7818632 | -3.5479853 |
| 17 | -22.8776944 | -3.5101306 |
| 18 | -22.9730062 | -3.4725876 |
| 19 | -23.0685196 | -3.4350711 |
| 20 | -23.1649790 | -3.3972942 |
| 21 | -23.2631390 | -3.3589632 |
| 22 | -23.3638227 | -3.3197664 |
| 23 | -23.4679284 | -3.2793624 |
| 24 | -23.4086356 | -3.1475927 |
| 25 | -23.3536696 | -3.0251411 |
| 26 | -23.3020506 | -2.9098902 |
| 27 | -23.2529926 | -2.8001145 |
| 28 | -23.2058268 | -2.6943679 |
| 29 | -23.1599929 | -2.5913934 |
| 30 | -23.1149716 | -2.4900538 |
| 31 | -23.0702920 | -2.3892881 |
| 32 | -23.0254893 | -2.2880553 |
| 33 | -22.9800959 | -2.1852985 |
| 34 | -22.9336267 | -2.0798925 |
| 35 | -22.8415148 | -2.1150978 |
| 36 | -22.7523706 | -2.1491207 |
| 37 | -22.6654053 | -2.1822616 |
| 38 | -22.5799084 | -2.2147998 |
| 39 | -22.4952071 | -2.2469887 |
| 40 | -22.4106596 | -2.2790744 |
| 41 | -22.3256307 | -2.3112984 |
| 42 | -22.2394643 | -2.3439057 |
| 43 | -22.1514745 | -2.3771568 |
| 44 | -22.0609128 | -2.4113274 |

HIGH RESOLUTION 149

| INDEX | LONGITUDE | LATITUDE |
|---|---|---|
| 1 | -22.5079420 | -2.6012758 |
| 2 | -22.5258849 | -2.6488771 |
| 3 | -22.5438244 | -2.6964818 |
| 4 | -22.5618083 | -2.7441932 |
| 5 | -22.5798638 | -2.7921164 |
| 6 | -22.5980425 | -2.8403589 |
| 7 | -22.6163814 | -2.8890274 |
| 8 | -22.6349187 | -2.9382389 |
| 9 | -22.6537051 | -2.9881078 |
| 10 | -22.6727853 | -3.0387613 |
| 11 | -22.6922102 | -3.0903310 |
| 12 | -22.7120314 | -3.1429576 |
| 13 | -22.7245853 | -3.1380629 |
| 14 | -22.7371323 | -3.1331733 |
| 15 | -22.7496657 | -3.1282881 |
| 16 | -22.7621958 | -3.1234070 |
| 17 | -22.7747190 | -3.1185286 |
| 18 | -22.7872353 | -3.1136535 |
| 19 | -22.7997551 | -3.1087793 |
| 20 | -22.8122714 | -3.1039060 |
| 21 | -22.8247876 | -3.0990344 |
| 22 | -22.8373108 | -3.0941619 |
| 23 | -22.8498373 | -3.0892894 |
| 24 | -22.8293059 | -3.0370214 |
| 25 | -22.8091943 | -2.9858018 |
| 26 | -22.7894413 | -2.9354897 |
| 27 | -22.7699959 | -2.8859546 |
| 28 | -22.7508099 | -2.8370710 |
| 29 | -22.7318389 | -2.7887226 |
| 30 | -22.7130356 | -2.7407969 |
| 31 | -22.6943583 | -2.6931854 |
| 32 | -22.6757665 | -2.6457830 |
| 33 | -22.6572192 | -2.5984831 |
| 34 | -22.6386752 | -2.5511858 |
| 35 | -22.6267941 | -2.5557389 |
| 36 | -22.6149130 | -2.5602912 |
| 37 | -22.6030388 | -2.5648419 |
| 38 | -22.5911644 | -2.5693907 |
| 39 | -22.5792935 | -2.5739414 |
| 40 | -22.5674160 | -2.5784911 |
| 41 | -22.5555348 | -2.5830435 |
| 42 | -22.5436468 | -2.5875966 |
| 43 | -22.5317554 | -2.5921532 |
| 44 | -22.5198538 | -2.5967115 |

**********
* PHOTO FRAME NUMBER 6 OF 8 *
**********

## FRAME 150

| | YEAR | MONTH | DAY | HOUR | MINUTE | SECOND |
|---|---|---|---|---|---|---|
| GMT | 67 | 4 | 20 | 18 | 40 | 2.899 |

| | | | | | |
|---|---|---|---|---|---|
| LONGITUDE OF NADIR POINT | = | -22.4864044 | DEG | LATITUDE OF NADIR POINT | = | -2.6626399 DEG |
| LONG OF CAMERA AXIS INTERSECT | = | -22.5448318 | DEG | LATI OF CAMERA AXIS INTERSECT | = | -2.8886531 DEG |
| SPACECRAFT RADIUS | = | 1785.8787537 | KM | SPACECRAFT ALTITUDE | = | 47.7887573 KM |
| MEAN ALTITUDE RATE | = | 0.0370864 | KM/SEC | TIME FROM PERIAPSIS | = | 71.7208462 SEC |
| HORIZONTAL VELOCITY | = | 1.9146587 | KM/SEC | TRUE ANOMALY | = | 4.4100094 DEG |
| SCALE FACTOR (HIGH) | = | 0.0126230 | M/KM | TILT DISTANCE (HIGH) | = | 90.3410559 MM |
| SCALE FACTOR (LOW) | = | 0.0016555 | M/KM | TILT DISTANCE (LOW) | = | 11.8480074 MM |
| IMAGE MOTION COMPENSATION (V/H) | = | 0.0396280 | RAD/SEC | SWING ANGLE | = | 353.4044685 DEG |
| EMISSION ANGLE | = | 8.6576596 | DEG | INCIDENCE ANGLE | = | 68.1343822 DEG |
| PHASE ANGLE | = | 66.2848177 | DEG | NORTH DEVIATION ANGLE | = | 338.7602882 DEG |
| TILT ANGLE | = | 8.4242747 | DEG | RESOLUTION CONSTANT | = | 1.0486435 MTR |
| TILT AZIMUTH | = | 194.4814987 | DEG | SUN AZIMUTH AT PRINCIPAL GND PT | = | 90.3970594 DEG |
| SUN ANGLE AT NADIR | = | 68.0777559 | DEG | SUN ARC AT NADIR | = | 2065.1655273 KM |
| LONGITUDE DISTANCE TO TARGET | = | 0.6965957 | DEG | LATITUDE DISTANCE TO TARGET | = | 0.4873601 DEG |
| LONGITUDE ARC LENGTH TO TARGET | = | 21.1315033 | KM | LATITUDE ARC LENGTH TO TARGET | = | 14.7842599 KM |
| FORWARD OVERLAP RATIO | = | 3.6192554 | PCT | SIDE OVERLAP RATIO | = | 0. PCT |
| TIME BETWEEN PHOTOS | = | 2.1996260 | SEC | ALPHA | = | 1.5933115 DEG. |

| | X | Y | Z | MAGNITUDE (KM) |
|---|---|---|---|---|
| DIRECTION COSINES TO TARGET | -0.97296665 | -0.01655605 | -0.23035149 | 54.46087694 |
| CAMERA AXIS | -0.93311456 | 0.34659921 | -0.09574031 | 48.32458496 |
| C1 | -0.89428414 | 0.44424524 | 0.05387047 | 47.90557861 |
| C2 | -0.90904571 | 0.31393482 | -0.27400882 | 50.58555603 |
| C3 | -0.94075475 | 0.23736779 | -0.24215088 | 50.50335693 |
| C4 | -0.92599319 | 0.36767820 | 0.08572840 | 47.83197021 |

| | X | Y | Z | X DOT | Y DOT | Z DOT |
|---|---|---|---|---|---|---|
| STATE VECTOR (1950.0) | -216.8445511 | -1605.2231293 | -752.0638733 | 1.7865220 | 0.0399744 | -0.6885018 |

LONG -21.8357 DEG
LATI -2.4957 DEG

(1) *

40.36174 KM

LONG -22.2474 DEG
LATI -3.7612 DEG

(2) *

LOW RESOLUTION

31.39912 KM

35.55143 KM

(4) *

39.85899 KM

(3) *

LONG -22.8044 DEG
LATI -2.1289 DEG

LONG -23.3390 DEG
LATI -3.3295 DEG

LONG -22.3782 DEG
LATI -2.6507 DEG

(1) *

17.58921 KM

LONG -22.5826 DEG
LATI -3.1934 DEG

(2) *

HIGH RESOLUTION

4.25070 KM

4.48837 KM

(4) *

17.56074 KM

(3) *

LONG -22.5092 DEG
LATI -2.6006 DEG

LONG -22.7206 DEG
LATI -3.1396 DEG

LOW RESOLUTION 150

| INDEX | LONGITUDE | LATITUDE |
|---|---|---|
| 1 | -21.8357456 | -2.4957366 |
| 2 | -21.8722119 | -2.6064804 |
| 3 | -21.9077051 | -2.7145237 |
| 4 | -21.9426210 | -2.8210422 |
| 5 | -21.9773183 | -2.9271518 |
| 6 | -22.0121660 | -3.0339444 |
| 7 | -22.0475223 | -3.1425478 |
| 8 | -22.0837736 | -3.2541633 |
| 9 | -22.1213498 | -3.3701305 |
| 10 | -22.1607361 | -3.4919939 |
| 11 | -22.2025166 | -3.6215959 |
| 12 | -22.2473941 | -3.7612058 |
| 13 | -22.3535933 | -3.7185906 |
| 14 | -22.4558995 | -3.6776649 |
| 15 | -22.5552649 | -3.6380319 |
| 16 | -22.6525474 | -3.5993432 |
| 17 | -22.7485321 | -3.5612794 |
| 18 | -22.8439667 | -3.5235434 |
| 19 | -22.9395792 | -3.4858433 |
| 20 | -23.0361001 | -3.4478948 |
| 21 | -23.1342909 | -3.4094016 |
| 22 | -23.2349746 | -3.3700511 |
| 23 | -23.3390462 | -3.3295020 |
| 24 | -23.2797260 | -3.1976222 |
| 25 | -23.2247329 | -3.0750655 |
| 26 | -23.1730897 | -2.9597130 |
| 27 | -23.1240046 | -2.8498400 |
| 28 | -23.0768182 | -2.7439969 |
| 29 | -23.0309534 | -2.6409259 |
| 30 | -22.9859085 | -2.5394925 |
| 31 | -22.9411979 | -2.4386285 |
| 32 | -22.8963647 | -2.3372984 |
| 33 | -22.8509474 | -2.2344391 |
| 34 | -22.8044405 | -2.1289255 |
| 35 | -22.7122774 | -2.1640788 |
| 36 | -22.6230512 | -2.1980590 |
| 37 | -22.5359800 | -2.2311718 |
| 38 | -22.4503534 | -2.2636894 |
| 39 | -22.3655019 | -2.2958665 |
| 40 | -22.2807801 | -2.3279487 |
| 41 | -22.1955497 | -2.3601786 |
| 42 | -22.1091580 | -2.3928022 |
| 43 | -22.0209086 | -2.4260780 |
| 44 | -21.9300499 | -2.4602862 |

HIGH RESOLUTION 150

| INDEX | LONGITUDE | LATITUDE |
|---|---|---|
| 1 | -22.3782027 | -2.6507375 |
| 2 | -22.3961728 | -2.6984284 |
| 3 | -22.4141431 | -2.7461219 |
| 4 | -22.4321542 | -2.7939230 |
| 5 | -22.4502406 | -2.8419366 |
| 6 | -22.4684465 | -2.8902688 |
| 7 | -22.4868128 | -2.9390295 |
| 8 | -22.5053806 | -2.9883332 |
| 9 | -22.5241978 | -3.0382960 |
| 10 | -22.5433087 | -3.0890452 |
| 11 | -22.5627611 | -3.1407122 |
| 12 | -22.5826130 | -3.1934395 |
| 13 | -22.5951908 | -3.1885261 |
| 14 | -22.6077583 | -3.1836177 |
| 15 | -22.6203122 | -3.1787136 |
| 16 | -22.6328628 | -3.1738147 |
| 17 | -22.6454065 | -3.1689183 |
| 18 | -22.6579432 | -3.1640262 |
| 19 | -22.6704800 | -3.1591340 |
| 20 | -22.6830134 | -3.1542453 |
| 21 | -22.6955502 | -3.1493558 |
| 22 | -22.7080870 | -3.1444654 |
| 23 | -22.7206306 | -3.1395758 |
| 24 | -22.7000751 | -3.0872224 |
| 25 | -22.6799331 | -3.0359183 |
| 26 | -22.6601562 | -2.9855234 |
| 27 | -22.6406834 | -2.9359055 |
| 28 | -22.6214733 | -2.8869416 |
| 29 | -22.6024718 | -2.8385130 |
| 30 | -22.5836444 | -2.7905087 |
| 31 | -22.5649433 | -2.7428187 |
| 32 | -22.5463243 | -2.6953369 |
| 33 | -22.5277529 | -2.6479593 |
| 34 | -22.5091817 | -2.6005825 |
| 35 | -22.4972801 | -2.6051417 |
| 36 | -22.4853818 | -2.6096991 |
| 37 | -22.4734838 | -2.6142540 |
| 38 | -22.4615889 | -2.6188097 |
| 39 | -22.4496942 | -2.6233663 |
| 40 | -22.4377959 | -2.6279229 |
| 41 | -22.4258909 | -2.6324795 |
| 42 | -22.4139826 | -2.6370395 |
| 43 | -22.4020638 | -2.6416029 |
| 44 | -22.3901384 | -2.6461681 |

**********
* PHOTO FRAME NUMBER 7 OF 8 *
**********

## FRAME 151

| | YEAR | MONTH | DAY | HOUR | MINUTE | SECOND |
|---|---|---|---|---|---|---|
| GMT | 67 | 2 | 20 | 18 | 40 | 4.999 |

| | | | | | |
|---|---|---|---|---|---|
| LONGITUDE OF NADIR POINT | = | -22.3660736 DEG | LATITUDE OF NADIR POINT | = | -2.7086071 DEG |
| LONG OF CAMERA AXIS INTERSECT | = | -22.4212532 DEG | LATI OF CAMERA AXIS INTERSECT | = | -2.9362248 DEG |
| SPACECRAFT RADIUS | = | 1785.9577637 KM | SPACECRAFT ALTITUDE | = | 47.8677673 KM |
| MEAN ALTITUDE RATE | = | 0.0381684 KM/SEC | TIME FROM PERIAPSIS | = | 73.8197765 SEC |
| HORIZONTAL VELOCITY | = | 1.9145740 KM/SEC | TRUE ANOMALY | = | 4.5389354 DEG |
| SCALE FACTOR (HIGH) | = | 0.0126016 M/KM | TILT DISTANCE (HIGH) | = | 90.5080490 MM |
| SCALE FACTOR (LOW) | = | 0.0016527 M/KM | TILT DISTANCE (LOW) | = | 11.8699081 MM |
| IMAGE MOTION COMPENSATION (V/H) | = | 0.0395598 RAD/SEC | SWING ANGLE | = | 352.5311012 DEG |
| EMISSION ANGLE | = | 8.6738235 DEG | INCIDENCE ANGLE | = | 68.0103493 DEG |
| PHASE ANGLE | = | 66.2848186 DEG | NORTH DEVIATION ANGLE | = | 338.7648659 DEG |
| TILT ANGLE | = | 8.4396228 DEG | RESOLUTION CONSTANT | = | 1.0504206 MTR |
| TILT AZIMUTH | = | 193.6119976 DEG | SUN AZIMUTH AT PRINCIPAL GND PT | = | 90.3719282 DEG |
| SUN ANGLE AT NADIR | = | 67.9568825 DEG | SUN ARC AT NADIR | = | 2061.4987793 KM |
| LONGITUDE DISTANCE TO TARGET | = | 0.8169265 DEG | LATITUDE DISTANCE TO TARGET | = | 0.4413929 DEG |
| LONGITUDE ARC LENGTH TO TARGET | = | 24.7817862 KM | LATITUDE ARC LENGTH TO TARGET | = | 13.3898281 KM |
| FORWARD OVERLAP RATIO | = | 8.1588452 PCT | SIDE OVERLAP RATIO | = | 0. PCT |
| TIME BETWEEN PHOTOS | = | 2.1004915 SEC | ALPHA | = | 1.4652632 DEG. |

| | X | Y | Z | MAGNITUDE (KM) |
|---|---|---|---|---|
| DIRECTION COSINES TO TARGET | -0.97679143 | -0.07825385 | -0.19938618 | 55.72206259 |
| CAMERA AXIS | -0.93311275 | 0.34660410 | -0.09574024 | 48.40647888 |
| C1 | -0.89428182 | 0.44424991 | 0.05387054 | 47.99172974 |
| C2 | -0.90904407 | 0.31393959 | -0.27400876 | 50.67686462 |
| C3 | -0.94075351 | 0.23737273 | -0.24215082 | 50.58351135 |
| C4 | -0.92599126 | 0.36768305 | 0.08572847 | 47.90812683 |

| | X | Y | Z | X DOT | Y DOT | Z DOT |
|---|---|---|---|---|---|---|
| STATE VECTOR (1950.0) | -213.0924339 | -1605.1361389 | -753.5083084 | 1.7869107 | 0.0428762 | -0.6871410 |

LONG -21.7105 DEG
LATI -2.5425 DEG

LONG -22.1230 DEG
LATI -3.8113 DEG

• 40.46465 KM •
(1) (2)

LOW RESOLUTION

31.45423 KM 35.61455 KM

(4) (3)
• 39.69363 KM •

LONG -22.6811 DEG
LATI -2.1757 DEG

LONG -23.2161 DEG
LATI -3.3774 DEG

LONG -22.2544 DEG
LATI -2.6979 DEG

LONG -22.4591 DEG
LATI -3.2416 DEG

• 17.62095 KM •
(1) (2)

HIGH RESOLUTION

4.25809 KM 4.49621 KM

(4) (3)
• 17.58862 KM •

LONG -22.3856 DEG
LATI -2.6477 DEG

LONG -22.5973 DEG
LATI -3.1876 DEG

LOW RESOLUTION 151

| INDEX | LONGITUDE | LATITUDE |
|---|---|---|
| 1 | -21.7104697 | -2.5424918 |
| 2 | -21.7470112 | -2.6535131 |
| 3 | -21.7825794 | -2.7618271 |
| 4 | -21.8175635 | -2.8686154 |
| 5 | -21.8523362 | -2.9749939 |
| 6 | -21.8872554 | -3.0820613 |
| 7 | -21.9226837 | -3.1909457 |
| 8 | -21.9590135 | -3.3028532 |
| 9 | -21.9966648 | -3.4191260 |
| 10 | -22.0361331 | -3.5413139 |
| 11 | -22.0780022 | -3.6712642 |
| 12 | -22.1229720 | -3.8112566 |
| 13 | -22.2294819 | -3.7683613 |
| 14 | -22.3320510 | -3.7271795 |
| 15 | -22.4316385 | -3.6873126 |
| 16 | -22.5291088 | -3.6484078 |
| 17 | -22.6252506 | -3.6101417 |
| 18 | -22.7208083 | -3.5722162 |
| 19 | -22.8165128 | -3.5343394 |
| 20 | -22.9131019 | -3.4962244 |
| 21 | -23.0113304 | -3.4575740 |
| 22 | -23.1120210 | -3.4180742 |
| 23 | -23.2160618 | -3.3773859 |
| 24 | -23.1567144 | -3.2453934 |
| 25 | -23.1016939 | -3.1227300 |
| 26 | -23.0530269 | -3.0072750 |
| 27 | -23.0009110 | -2.8973013 |
| 28 | -22.9536972 | -2.7913617 |
| 29 | -22.9078085 | -2.6881942 |
| 30 | -22.8627326 | -2.5866626 |
| 31 | -22.8179951 | -2.4857022 |
| 32 | -22.7731342 | -2.3842713 |
| 33 | -22.7276828 | -2.2813105 |
| 34 | -22.6811454 | -2.1756901 |
| 35 | -22.5889208 | -2.2107939 |
| 36 | -22.4996126 | -2.2447391 |
| 37 | -22.4124355 | -2.2778228 |
| 38 | -22.3266790 | -2.3103217 |
| 39 | -22.2416809 | -2.3424902 |
| 40 | -22.1567883 | -2.3745716 |
| 41 | -22.0713596 | -2.4068092 |
| 42 | -21.9847426 | -2.4394490 |
| 43 | -21.8962405 | -2.4727496 |
| 44 | -21.8050985 | -2.5069936 |

HIGH RESOLUTION 151

| INDEX | LONGITUDE | LATITUDE |
|---|---|---|
| 1 | -22.2543507 | -2.6979383 |
| 2 | -22.2723484 | -2.7457164 |
| 3 | -22.2903459 | -2.7934987 |
| 4 | -22.3083844 | -2.8413877 |
| 5 | -22.3265014 | -2.8894893 |
| 6 | -22.3447347 | -2.9379102 |
| 7 | -22.3631284 | -2.9867614 |
| 8 | -22.3817270 | -3.0361548 |
| 9 | -22.4005713 | -3.0862115 |
| 10 | -22.4197097 | -3.1370546 |
| 11 | -22.4391961 | -3.1888172 |
| 12 | -22.4590755 | -3.2416427 |
| 13 | -22.4716771 | -3.2367105 |
| 14 | -22.4842651 | -3.2317842 |
| 15 | -22.4968429 | -3.2268631 |
| 16 | -22.5094106 | -3.2219470 |
| 17 | -22.5219712 | -3.2170336 |
| 18 | -22.5345318 | -3.2121235 |
| 19 | -22.5470824 | -3.2072152 |
| 20 | -22.5596364 | -3.2023085 |
| 21 | -22.5721903 | -3.1974036 |
| 22 | -22.5847440 | -3.1924978 |
| 23 | -22.5973048 | -3.1875920 |
| 24 | -22.5767219 | -3.1351524 |
| 25 | -22.5565560 | -3.0837646 |
| 26 | -22.5367484 | -3.0332878 |
| 27 | -22.5172515 | -2.9835888 |
| 28 | -22.4980109 | -2.9345446 |
| 29 | -22.4789889 | -2.8860375 |
| 30 | -22.4601340 | -2.8379555 |
| 31 | -22.4414091 | -2.7901869 |
| 32 | -22.4227626 | -2.7426282 |
| 33 | -22.4041641 | -2.6951738 |
| 34 | -22.3855689 | -2.6477194 |
| 35 | -22.3736467 | -2.6522836 |
| 36 | -22.3617282 | -2.6568462 |
| 37 | -22.3498130 | -2.6614071 |
| 38 | -22.3378975 | -2.6659679 |
| 39 | -22.3259790 | -2.6705288 |
| 40 | -22.3140602 | -2.6750905 |
| 41 | -22.3021348 | -2.6796548 |
| 42 | -22.2901990 | -2.6842208 |
| 43 | -22.2782633 | -2.6887893 |
| 44 | -22.2663105 | -2.6933621 |

**********
* PHOTO FRAME NUMBER 8 OF 8 *
**********

## FRAME 152

| | YEAR | MONTH | DAY | HOUR | MINUTE | SECOND |
|---|---|---|---|---|---|---|
| GMT | 67 | 2 | 20 | 18 | 40 | 7.199 |

| | | | | | |
|---|---|---|---|---|---|
| LONGITUDE OF NADIR POINT | = | -22.2400589 | DEG | LATITUDE OF NADIR POINT | = -2.7567232 DEG |
| LONG OF CAMERA AXIS INTERSECT | = | -22.2918348 | DEG | LATI OF CAMERA AXIS INTERSECT | = -2.9860904 DEG |
| SPACECRAFT RADIUS | = | 1786.0429382 | KM | SPACECRAFT ALTITUDE | = 47.9529419 KM |
| MEAN ALTITUDE RATE | = | 0.0393010 | KM/SEC | TIME FROM PERIAPSIS | = 76.0175562 SEC |
| HORIZONTAL VELOCITY | = | 1.9144829 | KM/SEC | TRUE ANOMALY | = 4.6739208 DEG |
| SCALE FACTOR (HIGH) | = | 0.0125786 | M/KM | TILT DISTANCE (HIGH) | = 90.7052059 MM |
| SCALE FACTOR (LOW) | = | 0.0016496 | M/KM | TILT DISTANCE (LOW) | = 11.8957647 MM |
| IMAGE MOTION COMPENSATION (V/H) | = | 0.0394862 | RAD/SEC | SWING ANGLE | = 351.6203651 DEG |
| EMISSION ANGLE | = | 8.6928728 | DEG | INCIDENCE ANGLE | = 67.8804903 DEG |
| PHASE ANGLE | = | 66.2848186 | DEG | NORTH DEVIATION ANGLE | = 338.7698860 DEG |
| TILT ANGLE | = | 8.4577414 | DEG | RESOLUTION CONSTANT | = 1.0523411 MTR |
| TILT AZIMUTH | = | 192.7050953 | DEG | SUN AZIMUTH AT PRINCIPAL GND PT | = 90.3453541 DEG |
| SUN ANGLE AT NADIR | = | 67.8303385 | DEG | SUN ARC AT NADIR | = 2057.6600037 KM |
| LONGITUDE DISTANCE TO TARGET | = | 0.9429412 | DEG | LATITUDE DISTANCE TO TARGET | = 0.3932768 DEG |
| LONGITUDE ARC LENGTH TO TARGET | = | 28.6044917 | KM | LATITUDE ARC LENGTH TO TARGET | = 11.9302067 KM |
| FORWARD OVERLAP RATIO | = | 3.9986651 | PCT | SIDE OVERLAP RATIO | = 0. PCT |
| TIME BETWEEN PHOTOS | = | 2.1996260 | SEC | ALPHA | = 1.3311545 DEG. |

| | X | Y | Z | MAGNITUDE (KM) |
|---|---|---|---|---|
| DIRECTION COSINES TO TARGET | -0.97594950 | -0.13933741 | -0.16765340 | 57.30869198 |
| CAMERA AXIS | -0.93311091 | 0.34660908 | -0.09574016 | 48.49497986 |
| C1 | -0.89427945 | 0.44425467 | 0.05387063 | 48.08468628 |
| C2 | -0.90904242 | 0.31394445 | -0.27400868 | 50.77539062 |
| C3 | -0.94075227 | 0.23737775 | -0.24215075 | 50.67028809 |
| C4 | -0.92598929 | 0.36768797 | 0.08572855 | 47.99057007 |

| | X | Y | Z | X DOT | Y DOT | Z DOT |
|---|---|---|---|---|---|---|
| STATE VECTOR (1950.0) | -209.1626225 | -1605.0385132 | -755.0177383 | 1.7873104 | 0.0459142 | -0.6857135 |

LONG -21.5792 DEG
LATI -2.5914 DEG

LONG -21.9926 DEG
LATI -3.8637 DEG

(1) * 40.57492 KM * (2)

LOW RESOLUTION

31.51399 KM 35.68301 KM

(4) * 39.93210 KM * (3)

LONG -22.5520 DEG
LATI -2.2246 DEG

LONG -23.0873 DEG
LATI -3.4276 DEG

LONG -22.1246 DEG
LATI -2.7473 DEG

LONG -22.3297 DEG
LATI -3.2921 DEG

(1) * 17.65519 KM * (2)

HIGH RESOLUTION

4.26609 KM 4.50469 KM

(4) * 17.61880 KM * (3)

LONG -22.2561 DEG
LATI -2.6971 DEG

LONG -22.4682 DEG
LATI -3.2379 DEG

LOW RESOLUTION 152

| INDEX | LONGITUDE | LATITUDE |
|---|---|---|
| 1 | -21.5792274 | -2.5914258 |
| 2 | -21.6158509 | -2.7027434 |
| 3 | -21.6514943 | -2.8113485 |
| 4 | -21.6865606 | -2.9184254 |
| 5 | -21.7214081 | -3.0250942 |
| 6 | -21.7564027 | -3.1324553 |
| 7 | -21.7919128 | -3.2416410 |
| 8 | -21.8283176 | -3.3538602 |
| 9 | -21.8660579 | -3.4704600 |
| 10 | -21.9056149 | -3.5929962 |
| 11 | -21.9475727 | -3.7233213 |
| 12 | -21.9926486 | -3.8637218 |
| 13 | -22.0994899 | -3.8205286 |
| 14 | -22.2023389 | -3.7790762 |
| 15 | -22.3021688 | -3.7389590 |
| 16 | -22.3998406 | -3.6998238 |
| 17 | -22.4961498 | -3.6613450 |
| 18 | -22.5918441 | -3.6232198 |
| 19 | -22.6876545 | -3.5851560 |
| 20 | -22.7843187 | -3.5468634 |
| 21 | -22.8825951 | -3.5080457 |
| 22 | -22.9832959 | -3.4683879 |
| 23 | -23.0873163 | -3.4275502 |
| 24 | -23.0279346 | -3.2954330 |
| 25 | -22.9728832 | -3.1726501 |
| 26 | -22.9211822 | -3.0570816 |
| 27 | -22.8720388 | -2.9469978 |
| 28 | -22.8247945 | -2.8409497 |
| 29 | -22.7788718 | -2.7376747 |
| 30 | -22.7337651 | -2.6360372 |
| 31 | -22.6889966 | -2.5349683 |
| 32 | -22.6441019 | -2.4334273 |
| 33 | -22.5986128 | -2.3303521 |
| 34 | -22.5520411 | -2.2246139 |
| 35 | -22.4597483 | -2.2596699 |
| 36 | -22.3703444 | -2.2935756 |
| 37 | -22.2830546 | -2.3264339 |
| 38 | -22.1971617 | -2.3591157 |
| 39 | -22.1119993 | -2.3912756 |
| 40 | -22.0269191 | -2.4233838 |
| 41 | -21.9412823 | -2.4555958 |
| 42 | -21.8544261 | -2.4882635 |
| 43 | -21.7656541 | -2.5217331 |
| 44 | -21.6742048 | -2.5558764 |

HIGH RESOLUTION 152

| INDEX | LONGITUDE | LATITUDE |
|---|---|---|
| 1 | -22.1246352 | -2.7473496 |
| 2 | -22.1426635 | -2.7952224 |
| 3 | -22.1606917 | -2.8430978 |
| 4 | -22.1787610 | -2.8910824 |
| 5 | -22.1969054 | -2.9392788 |
| 6 | -22.2151694 | -2.9877971 |
| 7 | -22.2335973 | -3.0367447 |
| 8 | -22.2522233 | -3.0862363 |
| 9 | -22.2710984 | -3.1363929 |
| 10 | -22.2902708 | -3.1873376 |
| 11 | -22.3097880 | -3.2392035 |
| 12 | -22.3297048 | -3.2921332 |
| 13 | -22.3423271 | -3.2871830 |
| 14 | -22.3549390 | -3.2822388 |
| 15 | -22.3675373 | -3.2772980 |
| 16 | -22.3801286 | -3.2723632 |
| 17 | -22.3927100 | -3.2674310 |
| 18 | -22.4052877 | -3.2625030 |
| 19 | -22.4178622 | -3.2575767 |
| 20 | -22.4304364 | -3.2526521 |
| 21 | -22.4430075 | -3.2477293 |
| 22 | -22.4555817 | -3.2428064 |
| 23 | -22.4681597 | -3.2378827 |
| 24 | -22.4475460 | -3.1853517 |
| 25 | -22.4273491 | -3.1338734 |
| 26 | -22.4075177 | -3.0833070 |
| 27 | -22.3879902 | -3.0335209 |
| 28 | -22.3687258 | -2.9843905 |
| 29 | -22.3496728 | -2.9357980 |
| 30 | -22.3307908 | -2.8876315 |
| 31 | -22.3120384 | -2.8397792 |
| 32 | -22.2933648 | -2.7921352 |
| 33 | -22.2747388 | -2.7445979 |
| 34 | -22.2561164 | -2.6970598 |
| 35 | -22.2441738 | -2.7016301 |
| 36 | -22.2322311 | -2.7061977 |
| 37 | -22.2202954 | -2.7107646 |
| 38 | -22.2083561 | -2.7153305 |
| 39 | -22.1964138 | -2.7198991 |
| 40 | -22.1844676 | -2.7244668 |
| 41 | -22.1725183 | -2.7290370 |
| 42 | -22.1605654 | -2.7336079 |
| 43 | -22.1485989 | -2.7381851 |
| 44 | -22.1366222 | -2.7427657 |

**********
* PHOTO FRAME NUMBER 1 OF 8 *
**********

# FRAME 153

| | YEAR | MONTH | DAY | HOUR | MINUTE | SECOND |
|---|---|---|---|---|---|---|
| GMT | 67 | 2 | 20 | 22 | 8 | 45.999 |

| | | | | | |
|---|---|---|---|---|---|
| LONGITUDE OF NADIR POINT | = | -23.6053658 | DEG | LATITUDE OF NADIR POINT | = -2.9795727 DEG |
| LONG OF CAMERA AXIS INTERSECT | = | -23.5762143 | DEG | LATI OF CAMERA AXIS INTERSECT | = -2.9236470 DEG |
| SPACECRAFT RADIUS | = | 1786.8107758 | KM | SPACECRAFT ALTITUDE | = 48.7207794 KM |
| MEAN ALTITUDE RATE | = | 0.0437038 | KM/SEC | TIME FROM PERIAPSIS | = 84.6450539 SEC |
| HORIZONTAL VELOCITY | = | 1.9137700 | KM/SEC | TRUE ANOMALY | = 5.2315874 DEG |
| SCALE FACTOR (HIGH) | = | 0.0125104 | M/KM | TILT DISTANCE (HIGH) | = 23.9457371 MM |
| SCALE FACTOR (LOW) | = | 0.0016407 | M/KM | TILT DISTANCE (LOW) | = 3.1404245 MM |
| IMAGE MOTION COMPENSATION (V/H) | = | 0.0392529 | RAD/SEC | SWING ANGLE | = 186.6192551 DEG |
| EMISSION ANGLE | = | 2.3110736 | DEG | INCIDENCE ANGLE | = 67.4059515 DEG |
| PHASE ANGLE | = | 68.4754791 | DEG | NORTH DEVIATION ANGLE | = 339.1058960 DEG |
| TILT ANGLE | = | 2.2480092 | DEG | RESOLUTION CONSTANT | = 1.0580790 MTR |
| TILT AZIMUTH | = | 27.4957328 | DEG | SUN AZIMUTH AT PRINCIPAL GND PT | = 90.3456011 DEG |
| SUN ANGLE AT NADIR | = | 67.4347305 | DEG | SUN ARC AT NADIR | = 2045.6590881 KM |
| LONGITUDE DISTANCE TO TARGET | = | -0.4223657 | DEG | LATITUDE DISTANCE TO TARGET | = 0.1704274 DEG |
| LONGITUDE ARC LENGTH TO TARGET | = | -12.8126295 | KM | LATITUDE ARC LENGTH TO TARGET | = 5.1699809 KM |
| FORWARD OVERLAP RATIO | = | 0. | PCT | SIDE OVERLAP RATIO | = 0. PCT |
| TIME BETWEEN PHOTOS | = | 0. | SEC | ALPHA | = -1.0946619 DEG. |

| | X | Y | Z | MAGNITUDE (KM) |
|---|---|---|---|---|
| DIRECTION COSINES TO TARGET | -0.78442715 | 0.61917380 | -0.06139515 | 50.68993473 |
| CAMERA AXIS | -0.80547352 | 0.58466533 | 0.08658561 | 49.75945364 |
| C1 | -0.83498353 | 0.54819039 | 0.01370033 | 49.98271179 |
| C2 | -0.81361981 | 0.57515101 | -0.09494959 | 49.26741028 |
| C3 | -0.84369721 | 0.51894059 | -0.08322528 | 49.24684143 |
| C4 | -0.85736095 | 0.42167267 | 0.26532521 | 49.96153259 |

| | X | Y | Z | X DOT | Y DOT | Z DOT |
|---|---|---|---|---|---|---|
| STATE VECTOR (1950.0) | -192.2647648 | -1504.6645355 | -762.0984247 | 1.7884814 | 0.0599124 | -0.6798314 |

LONG -22.8095 DEG
LATI -2.4996 DEG

LONG -23.2956 DEG
LATI -3.7224 DEG

* 39.90852 KM *
(1) (2)

LOW RESOLUTION

34.19905 KM 33.07357 KM

(4) (3)
* 39.77981 KM *

LONG -23.8646 DEG
LATI -2.1003 DEG

LONG -24.3161 DEG
LATI -3.3317 DEG

LONG -23.4039 DEG
LATI -2.6775 DEG

LONG -23.6112 DEG
LATI -3.2174 DEG

* 17.51843 KM *
(1) (2)

HIGH RESOLUTION

4.43686 KM 4.37337 KM

(4) (3)
* 17.53104 KM *

LONG -23.5408 DEG
LATI -2.6256 DEG

LONG -23.7460 DEG
LATI -3.1660 DEG

LOW RESOLUTION 153

| INDEX | LONGITUDE | LATITUDE |
|---|---|---|
| 1 | -22.8094950 | -2.4996468 |
| 2 | -22.8591607 | -2.6233749 |
| 3 | -22.9060943 | -2.7405493 |
| 4 | -22.9509652 | -2.8528112 |
| 5 | -22.9943504 | -2.9615623 |
| 6 | -23.0367522 | -3.0680458 |
| 7 | -23.0786214 | -3.1733989 |
| 8 | -23.1204016 | -3.2787170 |
| 9 | -23.1625235 | -3.3850895 |
| 10 | -23.2054272 | -3.4936554 |
| 11 | -23.2496049 | -3.6056449 |
| 12 | -23.2955859 | -3.7224471 |
| 13 | -23.3940225 | -3.6844541 |
| 14 | -23.4890373 | -3.6478426 |
| 15 | -23.5814941 | -3.6122727 |
| 16 | -23.6721683 | -3.5774438 |
| 17 | -23.7617838 | -3.5430743 |
| 18 | -23.8510237 | -3.5089003 |
| 19 | -23.9405708 | -3.4746640 |
| 20 | -24.0310981 | -3.4401050 |
| 21 | -24.1233330 | -3.4049500 |
| 22 | -24.2180405 | -3.3689131 |
| 23 | -24.3160706 | -3.3316723 |
| 24 | -24.2725384 | -3.2143664 |
| 25 | -24.2308812 | -3.1018296 |
| 26 | -24.1905727 | -2.9926755 |
| 27 | -24.1511524 | -2.8856678 |
| 28 | -24.1121929 | -2.7796675 |
| 29 | -24.0732949 | -2.6735767 |
| 30 | -24.0340488 | -2.5662958 |
| 31 | -23.9940374 | -2.4566704 |
| 32 | -23.9528172 | -2.3434464 |
| 33 | -23.9098725 | -2.2252039 |
| 34 | -23.8646224 | -2.1002772 |
| 35 | -23.7635288 | -2.1390658 |
| 36 | -23.6658196 | -2.1764517 |
| 37 | -23.5706136 | -2.2127789 |
| 38 | -23.4771185 | -2.2483565 |
| 39 | -23.3845932 | -2.2834713 |
| 40 | -23.2923312 | -2.3183941 |
| 41 | -23.1996353 | -2.3533886 |
| 42 | -23.1057851 | -2.3887229 |
| 43 | -23.0100360 | -2.4246736 |
| 44 | -22.9115756 | -2.4615395 |

HIGH RESOLUTION 153

| INDEX | LONGITUDE | LATITUDE |
|---|---|---|
| 1 | -23.4038920 | -2.6776262 |
| 2 | -23.4233034 | -2.7281739 |
| 3 | -23.4424758 | -2.7780898 |
| 4 | -23.4614501 | -2.8274942 |
| 5 | -23.4802673 | -2.8765000 |
| 6 | -23.4989750 | -2.9252172 |
| 7 | -23.5176113 | -2.9737533 |
| 8 | -23.5362201 | -3.0222169 |
| 9 | -23.5548391 | -3.0707113 |
| 10 | -23.5735095 | -3.1193431 |
| 11 | -23.5922756 | -3.1682182 |
| 12 | -23.6111746 | -3.2174485 |
| 13 | -23.6234553 | -3.2127604 |
| 14 | -23.6357257 | -3.2080749 |
| 15 | -23.6479859 | -3.2033928 |
| 16 | -23.6602428 | -3.1987141 |
| 17 | -23.6724961 | -3.1940354 |
| 18 | -23.6847494 | -3.1893593 |
| 19 | -23.6970029 | -3.1846824 |
| 20 | -23.7092562 | -3.1800054 |
| 21 | -23.7215130 | -3.1753267 |
| 22 | -23.7337766 | -3.1706472 |
| 23 | -23.7460434 | -3.1659642 |
| 24 | -23.7273049 | -3.1166981 |
| 25 | -23.7087064 | -3.0677837 |
| 26 | -23.6901999 | -3.0191118 |
| 27 | -23.6717515 | -2.9705764 |
| 28 | -23.6533170 | -2.9220701 |
| 29 | -23.6348584 | -2.8734887 |
| 30 | -23.6163349 | -2.8247271 |
| 31 | -23.5977056 | -2.7756727 |
| 32 | -23.5789294 | -2.7262196 |
| 33 | -23.5599585 | -2.6762508 |
| 34 | -23.5407519 | -2.6256493 |
| 35 | -23.5283005 | -2.6303818 |
| 36 | -23.5158594 | -2.6351091 |
| 37 | -23.5034249 | -2.6398356 |
| 38 | -23.4909906 | -2.6445596 |
| 39 | -23.4785562 | -2.6492826 |
| 40 | -23.4661252 | -2.6540048 |
| 41 | -23.4536877 | -2.6587254 |
| 42 | -23.4412498 | -2.6634485 |
| 43 | -23.4288051 | -2.6681715 |
| 44 | -23.4163537 | -2.6728980 |

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* PHOTO FRAME NUMBER 2 OF 8 *
**********

## FRAME 154

| | YEAR | MONTH | DAY | HOUR | MINUTE | SECOND |
|---|---|---|---|---|---|---|
| GMT | 67 | 2 | 20 | 22 | 8 | 48.199 |

| | | | | | | |
|---|---|---|---|---|---|---|
| LONGITUDE OF NADIR POINT | = | -23.4794350 | DEG | LATITUDE OF NADIR POINT | = | -3.0276230 DEG |
| LONG OF CAMERA AXIS INTERSECT | = | -23.4466832 | DEG | LATI OF CAMERA AXIS INTERSECT | = | -2.9729303 DEG |
| SPACECRAFT RADIUS | = | 1786.9081268 | KM | SPACECRAFT ALTITUDE | = | 48.8181305 KM |
| MEAN ALTITUDE RATE | = | 0.0448337 | KM/SEC | TIME FROM PERIAPSIS | = | 86.8427992 SEC |
| HORIZONTAL VELOCITY | = | 1.9136658 | KM/SEC | TRUE ANOMALY | = | 5.3364498 DEG |
| SCALE FACTOR (HIGH) | = | 0.0124853 | M/KM | TILT DISTANCE (HIGH) | = | 24.1541784 MM |
| SCALE FACTOR (LOW) | = | 0.0016374 | M/KM | TILT DISTANCE (LOW) | = | 3.1677611 MM |
| IMAGE MOTION COMPENSATION (V/H) | = | 0.0391737 | RAD/SEC | SWING ANGLE | = | 190.0082455 DEG |
| EMISSION ANGLE | = | 2.3313000 | DEG | INCIDENCE ANGLE | = | 67.2760010 DEG |
| PHASE ANGLE | = | 68.4754791 | DEG | NORTH DEVIATION ANGLE | = | 339.1135521 DEG |
| TILT ANGLE | = | 2.2675571 | DEG | RESOLUTION CONSTANT | = | 1.0602070 MIR |
| TILT AZIMUTH | = | 30.8755291 | DEG | SUN AZIMUTH AT PRINCIPAL GND PT | = | 90.3186626 DEG |
| SUN ANGLE AT NADIR | = | 67.3084059 | DEG | SUN ARC AT NADIR | = | 2041.8269958 KM |
| LONGITUDE DISTANCE TO TARGET | = | -0.2964349 | DEG | LATITUDE DISTANCE TO TARGET | = | 0.1223770 DEG |
| LONGITUDE ARC LENGTH TO TARGET | = | -8.9924686 | KM | LATITUDE ARC LENGTH TO TARGET | = | 3.7123538 KM |
| FORWARD OVERLAP RATIO | = | 4.7531097 | PCT | SIDE OVERLAP RATIO | = | 0. PCT |
| TIME BETWEEN PHOTOS | = | 2.2302697 | SEC | ALPHA | = | -1.2139647 DEG. |

| | X | Y | Z | MAGNITUDE (KM) |
|---|---|---|---|---|
| DIRECTION COSINES TO TARGET | -0.83010595 | 0.55714510 | -0.02265932 | 49.80230093 |
| CAMERA AXIS | -0.90547129 | 0.41546019 | 0.08668668 | 48.85746765 |
| C1 | -0.83498084 | 0.49818756 | 0.23370101 | 50.08888245 |
| C2 | -0.91361768 | 0.39535592 | -0.09484950 | 49.37193298 |
| C3 | -0.94569552 | 0.31884567 | -0.06322522 | 49.34059143 |
| C4 | -0.86705867 | 0.42167731 | 0.26532529 | 50.05662537 |

| | X | Y | Z | X DOT | Y DOT | Z DOT |
|---|---|---|---|---|---|---|
| STATE VECTOR (1950.0) | -188.3315010 | -1604.5294495 | -763.5817871 | 1.7888411 | 0.0629451 | -0.6783898 |

LONG -22.6777 DEG
LATI -2.5476 DEG

LONG -23.1651 DEG
LATI -3.7739 DEG

(1) • 40.02289 KM • (2)

LOW RESOLUTION

34.26892 KM 33.16103 KM

(4) • 39.82673 KM • (3)

LONG -23.7355 DEG
LATI -2.1487 DEG

LONG -24.1874 DEG
LATI -3.3816 DEG

LONG -23.2740 DEG
LATI -2.7264 DEG

LONG -23.4817 DEG
LATI -3.2674 DEG

(1) • 17.57566 KM • (2)

HIGH RESOLUTION

4.44586 KM 4.38224 KM

(4) • 17.56441 KM • (3)

LONG -23.4112 DEG
LATI -2.6744 DEG

LONG -23.6168 DEG
LATI -3.2157 DEG

LOW RESOLUTION 154

| INDEX | LONGITUDE | LATITUDE |
|---|---|---|
| 1 | -22.6777370 | -2.5475709 |
| 2 | -22.7275360 | -2.6716626 |
| 3 | -22.7745960 | -2.7891811 |
| 4 | -22.8195899 | -2.9017708 |
| 5 | -22.8630915 | -3.0108387 |
| 6 | -22.9056058 | -3.1176304 |
| 7 | -22.9475842 | -3.2232892 |
| 8 | -22.9894738 | -3.3289120 |
| 9 | -23.0317013 | -3.4355945 |
| 10 | -23.0747180 | -3.5444737 |
| 11 | -23.1190050 | -3.6567884 |
| 12 | -23.1651053 | -3.7739296 |
| 13 | -23.2638698 | -3.7357267 |
| 14 | -23.3591681 | -3.6989230 |
| 15 | -23.4518743 | -3.6631790 |
| 16 | -23.5427635 | -3.6281896 |
| 17 | -23.6325667 | -3.5936715 |
| 18 | -23.7219672 | -3.5593601 |
| 19 | -23.8116474 | -3.5249965 |
| 20 | -23.9022841 | -3.4903171 |
| 21 | -23.9946010 | -3.4550520 |
| 22 | -24.0893664 | -3.4189118 |
| 23 | -24.1874239 | -3.3815771 |
| 24 | -24.1438508 | -3.2641243 |
| 25 | -24.1021559 | -3.1514484 |
| 26 | -24.0618100 | -3.0421594 |
| 27 | -24.0223520 | -2.9350210 |
| 28 | -23.9833584 | -2.8288910 |
| 29 | -23.9444160 | -2.7226722 |
| 30 | -23.9051356 | -2.6152597 |
| 31 | -23.8650870 | -2.5055029 |
| 32 | -23.8238223 | -2.3921431 |
| 33 | -23.7808399 | -2.2737605 |
| 34 | -23.7355456 | -2.1486861 |
| 35 | -23.6343529 | -2.1873706 |
| 36 | -23.5365171 | -2.2246668 |
| 37 | -23.4411576 | -2.2609181 |
| 38 | -23.3474815 | -2.2964325 |
| 39 | -23.2547481 | -2.3314953 |
| 40 | -23.1622570 | -2.3663762 |
| 41 | -23.0692947 | -2.4013391 |
| 42 | -22.9751542 | -2.4366503 |
| 43 | -22.8790705 | -2.4725882 |
| 44 | -22.7802343 | -2.5094524 |

HIGH RESOLUTION 154

| INDEX | LONGITUDE | LATITUDE |
|---|---|---|
| 1 | -23.2740092 | -2.7263605 |
| 2 | -23.2934616 | -2.7770182 |
| 3 | -23.3126681 | -2.8270434 |
| 4 | -23.3316765 | -2.8765537 |
| 5 | -23.3505311 | -2.9256654 |
| 6 | -23.3692732 | -2.9744884 |
| 7 | -23.3879435 | -3.0231305 |
| 8 | -23.4065866 | -3.0716991 |
| 9 | -23.4252431 | -3.1202976 |
| 10 | -23.4439478 | -3.1690353 |
| 11 | -23.4627445 | -3.2180180 |
| 12 | -23.4816811 | -3.2673541 |
| 13 | -23.4939857 | -3.2626524 |
| 14 | -23.5062835 | -3.2579549 |
| 15 | -23.5185709 | -3.2532609 |
| 16 | -23.5308516 | -3.2485677 |
| 17 | -23.5431323 | -3.2438779 |
| 18 | -23.5554097 | -3.2391881 |
| 19 | -23.5676868 | -3.2345001 |
| 20 | -23.5799642 | -3.2298111 |
| 21 | -23.5922413 | -3.2251213 |
| 22 | -23.6045289 | -3.2204299 |
| 23 | -23.6168199 | -3.2157367 |
| 24 | -23.5980504 | -3.1663723 |
| 25 | -23.5794177 | -3.1173623 |
| 26 | -23.5608840 | -3.0685965 |
| 27 | -23.5424049 | -3.0199664 |
| 28 | -23.5239394 | -2.9713662 |
| 29 | -23.5054536 | -2.9226908 |
| 30 | -23.4868960 | -2.8738319 |
| 31 | -23.4682360 | -2.8246836 |
| 32 | -23.4494290 | -2.7751340 |
| 33 | -23.4304240 | -2.7250696 |
| 34 | -23.4111867 | -2.6743682 |
| 35 | -23.3987114 | -2.6791007 |
| 36 | -23.3862429 | -2.6838297 |
| 37 | -23.3737812 | -2.6885571 |
| 38 | -23.3613160 | -2.6932819 |
| 39 | -23.3488579 | -2.6980058 |
| 40 | -23.3363926 | -2.7027297 |
| 41 | -23.3239310 | -2.7074528 |
| 42 | -23.3114626 | -2.7121767 |
| 43 | -23.2989872 | -2.7169023 |
| 44 | -23.2865016 | -2.7216305 |

**********
* PHOTO FRAME NUMBER 3 OF 3 *
**********

# FRAME 155

| | YEAR | MONTH | DAY | HOUR | MINUTE | SECOND |
|---|---|---|---|---|---|---|
| GMT | 67 | 2 | 20 | 22 | 8 | 52.399 |

| | | | | | |
|---|---|---|---|---|---|
| LONGITUDE OF NADIR POINT | = | -23.3533897 | DEG | LATITUDE OF NADIR POINT | = -3.0756973 DEG |
| LONG OF CAMERA AXIS INTERSECT | = | -23.3170190 | DEG | LATI OF CAMERA AXIS INTERSECT | = -3.0222400 DEG |
| SPACECRAFT RADIUS | = | 1787.3080261 | KM | SPACECRAFT ALTITUDE | = 48.9180298 KM |
| MEAN ALTITUDE RATE | = | 0.0459642 | KM/SEC | TIME FROM PERIAPSIS | = 89.0426264 SEC |
| HORIZONTAL VELOCITY | = | 1.9135590 | KM/SEC | TRUE ANOMALY | = 5.4714221 DEG |
| SCALE FACTOR (HIGH) | = | 0.0124596 | M/KM | TILT DISTANCE (HIGH) | = 24.4456847 MM |
| SCALE FACTOR (LOW) | = | 0.0216340 | M/KM | TILT DISTANCE (LOW) | = 3.2059614 MM |
| IMAGE MOTION COMPENSATION (V/H) | = | 0.0390924 | RAD/SEC | SWING ANGLE | = 193.3309135 DEG |
| EMISSION ANGLE | = | 2.3595167 | DEG | INCIDENCE ANGLE | = 67.1459446 DEG |
| PHASE ANGLE | = | 68.4754791 | DEG | NORTH DEVIATION ANGLE | = 339.1214409 DEG |
| TILT ANGLE | = | 2.2948942 | DEG | RESOLUTION CONSTANT | = 1.0623974 MTR |
| TILT AZIMUTH | = | 34.1886377 | DEG | SUN AZIMUTH AT PRINCIPAL GND PT | = 90.2914391 DEG |
| SUN ANGLE AT NADIR | = | 67.1819935 | DEG | SUN ARC AT NADIR | = 2037.9922180 KM |
| LONGITUDE DISTANCE TO TARGET | = | -0.1733897 | DEG | LATITUDE DISTANCE TO TARGET | = 0.0748027 DEG |
| LONGITUDE ARC LENGTH TO TARGET | = | -5.1688371 | KM | LATITUDE ARC LENGTH TO TARGET | = 2.2540017 KM |
| FORWARD OVERLAP RATIO | = | 4.8605075 | PCT | SIDE OVERLAP RATIO | = 0. PCT |
| TIME BETWEEN PHOTOS | = | 2.1996260 | SEC | ALPHA | = -1.3433832 DEG. |

| DIRECTION COSINES TO TARGET | X | Y | Z | MAGNITUDE (KM) |
|---|---|---|---|---|
| CAMERA AXIS | -0.87145869 | 0.49041339 | 0.00759473 | 49.25022888 |
| C1 | -0.90546904 | 0.41546503 | 0.08669675 | 48.95040454 |
| C2 | -0.83497813 | 0.54819206 | 0.23370108 | 50.19798279 |
| C3 | -0.91361555 | 0.39536086 | -0.09484943 | 49.47933960 |
| C4 | -0.94569379 | 0.31885079 | -0.06322515 | 49.43717957 |
| | -0.86705638 | 0.42168198 | 0.26532535 | 50.15458679 |

| STATE VECTOR (1950.0) | X | Y | Z | X DOT | Y DOT | Z DOT |
|---|---|---|---|---|---|---|
| | -184.3938789 | -1604.3875580 | -765.0733261 | 1.7891937 | 0.0659798 | -0.6769442 |

LONG -22.5458 DEG
LATI -2.5955 DEG

LONG -23.0345 DEG
LATI -3.8255 DEG

* 40.13981 KM *
(1) (2)

LOW RESOLUTION

34.34107 KM 33.23069 KM

(4) (3)
* 39.87585 KM *

LONG -23.6064 DEG
LATI -2.1971 DEG

LONG -24.0587 DEG
LATI -3.4315 DEG

LONG -23.1440 DEG
LATI -2.7751 DEG

LONG -23.3521 DEG
LATI -3.3173 DEG

* 17.61393 KM *
(1) (2)

HIGH RESOLUTION

4.45514 KM 4.39139 KM

(4) (3)
* 17.59879 KM *

LONG -23.2815 DEG
LATI -2.7231 DEG

LONG -23.4875 DEG
LATI -3.2655 DEG

LOW RESOLUTION 155

| INDEX | LONGITUDE | LATITUDE |
|---|---|---|
| 1 | -22.5457914 | -2.5954923 |
| 2 | -22.5957305 | -2.7199563 |
| 3 | -22.6429236 | -2.8378249 |
| 4 | -22.6880405 | -2.9507501 |
| 5 | -22.7316613 | -3.0601416 |
| 6 | -22.7742853 | -3.1672500 |
| 7 | -22.8163798 | -3.2732204 |
| 8 | -22.8583784 | -3.3791566 |
| 9 | -22.9007189 | -3.4861532 |
| 10 | -22.9438481 | -3.5953543 |
| 11 | -22.9882512 | -3.7080021 |
| 12 | -23.0344677 | -3.8254898 |
| 13 | -23.1335669 | -3.7870726 |
| 14 | -23.2291586 | -3.7500752 |
| 15 | -23.3221176 | -3.7141526 |
| 16 | -23.4132323 | -3.6790002 |
| 17 | -23.5032270 | -3.6443310 |
| 18 | -23.5927947 | -3.6098804 |
| 19 | -23.6826117 | -3.5753863 |
| 20 | -23.7733676 | -3.5405856 |
| 21 | -23.8657734 | -3.5052078 |
| 22 | -23.9605968 | -3.4689625 |
| 23 | -24.0586920 | -3.4315297 |
| 24 | -24.0150745 | -3.3139240 |
| 25 | -23.9733353 | -3.2011030 |
| 26 | -23.9329517 | -3.0916731 |
| 27 | -23.8934562 | -2.9843982 |
| 28 | -23.8544183 | -2.8781324 |
| 29 | -23.8154416 | -2.7717778 |
| 30 | -23.7761168 | -2.6642305 |
| 31 | -23.7360306 | -2.5543362 |
| 32 | -23.6947250 | -2.4408346 |
| 33 | -23.6516981 | -2.3223035 |
| 34 | -23.6063592 | -2.1970737 |
| 35 | -23.5050609 | -2.2356558 |
| 36 | -23.4070921 | -2.2728649 |
| 37 | -23.3115718 | -2.3090427 |
| 38 | -23.2177079 | -2.3444965 |
| 39 | -23.1247661 | -2.3795081 |
| 40 | -23.0320327 | -2.4143483 |
| 41 | -22.9388039 | -2.4492793 |
| 42 | -22.8443561 | -2.4845692 |
| 43 | -22.7479377 | -2.5204977 |
| 44 | -22.6487191 | -2.5573628 |

HIGH RESOLUTION 155

| INDEX | LONGITUDE | LATITUDE |
|---|---|---|
| 1 | -23.1439862 | -2.7751075 |
| 2 | -23.1634762 | -2.8258772 |
| 3 | -23.1827202 | -2.8760125 |
| 4 | -23.2017663 | -2.9256338 |
| 5 | -23.2206552 | -2.9748547 |
| 6 | -23.2394347 | -3.0237862 |
| 7 | -23.2581427 | -3.0725358 |
| 8 | -23.2768197 | -3.1212120 |
| 9 | -23.2955072 | -3.1699198 |
| 10 | -23.3142493 | -3.2187650 |
| 11 | -23.3330834 | -3.2678562 |
| 12 | -23.3520544 | -3.3173024 |
| 13 | -23.3643863 | -3.3125871 |
| 14 | -23.3767114 | -3.3078768 |
| 15 | -23.3890262 | -3.3031691 |
| 16 | -23.4013340 | -3.2984639 |
| 17 | -23.4136388 | -3.2937613 |
| 18 | -23.4259398 | -3.2890596 |
| 19 | -23.4382410 | -3.2843587 |
| 20 | -23.4505422 | -3.2796570 |
| 21 | -23.4628503 | -3.2749553 |
| 22 | -23.4751582 | -3.2702527 |
| 23 | -23.4874697 | -3.2655475 |
| 24 | -23.4686697 | -3.2160359 |
| 25 | -23.4500096 | -3.1669768 |
| 26 | -23.4314415 | -3.1181128 |
| 27 | -23.4129319 | -3.0693853 |
| 28 | -23.3944356 | -3.0206378 |
| 29 | -23.3759155 | -2.9719152 |
| 30 | -23.3573306 | -2.9229589 |
| 31 | -23.3386397 | -2.8737124 |
| 32 | -23.3197954 | -2.8240529 |
| 33 | -23.3007631 | -2.7738969 |
| 34 | -23.2814918 | -2.7230956 |
| 35 | -23.2689891 | -2.7278289 |
| 36 | -23.2564931 | -2.7325597 |
| 37 | -23.2440007 | -2.7372870 |
| 38 | -23.2315083 | -2.7420135 |
| 39 | -23.2190194 | -2.7467392 |
| 40 | -23.2065270 | -2.7514639 |
| 41 | -23.1940346 | -2.7561896 |
| 42 | -23.1815319 | -2.7609152 |
| 43 | -23.1690257 | -2.7656443 |
| 44 | -23.1565130 | -2.7703742 |

**********
* PHOTO FRAME NUMBER 4 OF 8 *
********** **FRAME 156**

| | YEAR | MONTH | DAY | HOUR | MINUTE | SECOND |
|---|---|---|---|---|---|---|
| GMT | 67 | 2 | 20 | 22 | 8 | 52.599 |

| | | | | | |
|---|---|---|---|---|---|
| LONGITUDE OF NADIR POINT | = | -23.2274666 | DEG | LATITUDE OF NADIR POINT | = | -3.1237067 | DEG |
| LONG OF CAMERA AXIS INTERSECT | = | -23.1874638 | DEG | LATI OF CAMERA AXIS INTERSECT | = | -3.0714865 | DEG |
| SPACECRAFT RADIUS | = | 1787.1103516 | KM | SPACECRAFT ALTITUDE | = | 49.0203552 | KM |
| MEAN ALTITUDE RATE | = | 0.0470934 | KM/SEC | TIME FROM PERIAPSIS | = | 91.2403927 | SEC |
| HORIZONTAL VELOCITY | = | 1.9134495 | KM/SEC | TRUE ANOMALY | = | 5.6062548 | DEG |
| SCALE FACTOR (HIGH) | = | 0.0124332 | M/KM | TILT DISTANCE (HIGH) | = | 24.8171189 | MM |
| SCALE FACTOR (LOW) | = | 0.0016306 | M/KM | TILT DISTANCE (LOW) | = | 3.2547041 | MM |
| IMAGE MOTION COMPENSATION (V/H) | = | 0.0390091 | RAD/SEC | SWING ANGLE | = | 196.5612240 | DEG |
| EMISSION ANGLE | = | 2.3954720 | DEG | INCIDENCE ANGLE | = | 67.0160236 | DEG |
| PHASE ANGLE | = | 68.4754791 | DEG | NORTH DEVIATION ANGLE | = | 339.1295433 | DEG |
| TILT ANGLE | = | 2.3297253 | DEG | RESOLUTION CONSTANT | = | 1.0646466 | MTR |
| TILT AZIMUTH | = | 37.4096475 | DEG | SUN AZIMUTH AT PRINCIPAL GND PT | = | 90.2639799 | DEG |
| SUN ANGLE AT NADIR | = | 67.0557299 | DEG | SUN ARC AT NADIR | = | 2034.1619720 | KM |
| LONGITUDE DISTANCE TO TARGET | = | -0.0444665 | DEG | LATITUDE DISTANCE TO TARGET | = | 0.0262933 | DEG |
| LONGITUDE ARC LENGTH TO TARGET | = | -1.3489086 | KM | LATITUDE ARC LENGTH TO TARGET | = | 0.7976178 | KM |
| FORWARD OVERLAP RATIO | = | 5.1491284 | PCT | SIDE OVERLAP RATIO | = | 0. | PCT |
| TIME BETWEEN PHOTOS | = | 2.2002697 | SEC | ALPHA | = | -1.4726761 | DEG. |

| DIRECTION COSINES TO TARGET | X | Y | Z | MAGNITUDE (KM) |
|---|---|---|---|---|
| CAMERA AXIS | -0.90709974 | 0.41917640 | 0.03822570 | 49.04604483 |
| C1 | -0.90546677 | 0.41547000 | 0.08668683 | 49.06205750 |
| C2 | -0.83497541 | 0.49819659 | 0.23370116 | 50.30990601 |
| C3 | -0.91361340 | 0.39536584 | -0.09484936 | 49.58950806 |
| C4 | -0.94569207 | 0.31885594 | -0.06322508 | 49.53648376 |
| | -0.86705407 | 0.42168668 | 0.26532543 | 50.25531006 |

| | X | Y | Z | X DOT | Y DOT | Z DOT |
|---|---|---|---|---|---|---|
| STATE VECTOR (1950.0) | -180.4590530 | -1604.2391357 | -766.5603409 | 1.7895384 | 0.0690109 | -0.6754974 |

LONG -22.4139 DEG
LATI -2.6433 DEG

LONG -22.9039 DEG
LATI -3.8770 DEG

* 40.25916 KM *
(1) (2)

LOW RESOLUTION

34.41546 KM 33.30249 KM

(4) (3)
* 39.92716 KM *

LONG -23.4773 DEG
LATI -2.2454 DEG

LONG -23.9301 DEG
LATI -3.4814 DEG

LONG -23.0141 DEG
LATI -2.8238 DEG

LONG -23.2225 DEG
LATI -3.3672 DEG

* 17.65318 KM *
(1) (2)

HIGH RESOLUTION

4.46471 KM 4.40080 KM

(4) (3)
* 17.63413 KM *

LONG -23.1519 DEG
LATI -2.7717 DEG

LONG -23.3582 DEG
LATI -3.3153 DEG

LOW RESOLUTION 156

| INDEX | LONGITUDE | LATITUDE |
|---|---|---|
| 1 | -22.4139040 | -2.6433241 |
| 2 | -22.4639864 | -2.7681680 |
| 3 | -22.5113094 | -2.8863944 |
| 4 | -22.5565560 | -2.9996602 |
| 5 | -22.6002965 | -3.1093830 |
| 6 | -22.6430364 | -3.2168133 |
| 7 | -22.6852469 | -3.3231038 |
| 8 | -22.7273583 | -3.4293577 |
| 9 | -22.7698114 | -3.5366762 |
| 10 | -22.8130534 | -3.6462068 |
| 11 | -22.8575759 | -3.7591918 |
| 12 | -22.9039121 | -3.8770356 |
| 13 | -23.0033562 | -3.8383998 |
| 14 | -23.0992451 | -3.8012060 |
| 15 | -23.1924670 | -3.7651050 |
| 16 | -23.2838070 | -3.7297852 |
| 17 | -23.3740032 | -3.6949624 |
| 18 | -23.4637415 | -3.6603700 |
| 19 | -23.5537055 | -3.6257427 |
| 20 | -23.6445777 | -3.5908199 |
| 21 | -23.7370789 | -3.5553268 |
| 22 | -23.8319743 | -3.5189740 |
| 23 | -23.9301069 | -3.4814438 |
| 24 | -23.8864448 | -3.3636786 |
| 25 | -23.8446646 | -3.2507047 |
| 26 | -23.8042367 | -3.1411279 |
| 27 | -23.7647002 | -3.0337087 |
| 28 | -23.7256212 | -2.9273029 |
| 29 | -23.6866038 | -2.8208075 |
| 30 | -23.6472380 | -2.7131193 |
| 31 | -23.6071072 | -2.6030790 |
| 32 | -23.5657606 | -2.4894306 |
| 33 | -23.5226862 | -2.3707449 |
| 34 | -23.4772961 | -2.2453529 |
| 35 | -23.3758883 | -2.2838351 |
| 36 | -23.2777793 | -2.3209589 |
| 37 | -23.1820953 | -2.3570649 |
| 38 | -23.0880437 | -2.3924581 |
| 39 | -22.9948800 | -2.4274202 |
| 40 | -22.9019005 | -2.4622208 |
| 41 | -22.8083951 | -2.4971231 |
| 42 | -22.7136400 | -2.5323959 |
| 43 | -22.6168733 | -2.5683141 |
| 44 | -22.5172687 | -2.6051801 |

HIGH RESOLUTION 156

| INDEX | LONGITUDE | LATITUDE |
|---|---|---|
| 1 | -23.0140624 | -2.8237752 |
| 2 | -23.0335898 | -2.8746609 |
| 3 | -23.0528715 | -2.9249106 |
| 4 | -23.0719516 | -2.9746455 |
| 5 | -23.0908816 | -3.0239774 |
| 6 | -23.1096954 | -3.0730207 |
| 7 | -23.1284409 | -3.1218805 |
| 8 | -23.1471555 | -3.1706677 |
| 9 | -23.1658804 | -3.2194864 |
| 10 | -23.1846600 | -3.2684427 |
| 11 | -23.2035284 | -3.3176448 |
| 12 | -23.2225368 | -3.3672047 |
| 13 | -23.2348962 | -3.3624765 |
| 14 | -23.2472484 | -3.3577517 |
| 15 | -23.2595906 | -3.3530303 |
| 16 | -23.2719259 | -3.3483123 |
| 17 | -23.2842579 | -3.3435961 |
| 18 | -23.2965863 | -3.3388824 |
| 19 | -23.3089116 | -3.3341679 |
| 20 | -23.3212399 | -3.3294550 |
| 21 | -23.3335683 | -3.3247414 |
| 22 | -23.3459003 | -3.3200260 |
| 23 | -23.3582392 | -3.3153097 |
| 24 | -23.3394048 | -3.2657456 |
| 25 | -23.3207107 | -3.2165358 |
| 26 | -23.3021121 | -3.1675710 |
| 27 | -23.2835681 | -3.1187437 |
| 28 | -23.2650411 | -3.0699463 |
| 29 | -23.2464902 | -3.0210729 |
| 30 | -23.2278712 | -2.9720168 |
| 31 | -23.2091463 | -2.9226686 |
| 32 | -23.1902711 | -2.8729175 |
| 33 | -23.1712046 | -2.8226499 |
| 34 | -23.1518991 | -2.7717437 |
| 35 | -23.1393690 | -2.7764778 |
| 36 | -23.1268458 | -2.7812094 |
| 37 | -23.1143262 | -2.7859385 |
| 38 | -23.1018031 | -2.7906658 |
| 39 | -23.0892832 | -2.7953932 |
| 40 | -23.0767601 | -2.8001205 |
| 41 | -23.0642371 | -2.8048479 |
| 42 | -23.0517070 | -2.8095761 |
| 43 | -23.0391667 | -2.8143068 |
| 44 | -23.0266197 | -2.8190391 |

PHOTO FRAME NUMBER 5 OF 8

## FRAME 157

| | YEAR | MONTH | DAY | HOUR | MINUTE | SECOND |
|---|---|---|---|---|---|---|
| GMT | 67 | 2 | 20 | 22 | 8 | 54.799 |

| | | | | | |
|---|---|---|---|---|---|
| LONGITUDE OF NADIR POINT | = | -23.1014290 | DEG | LATITUDE OF NADIR POINT | = -3.1717392 DEG |
| LONG OF CAMERA AXIS INTERSECT | = | -23.0577722 | DEG | LATI OF CAMERA AXIS INTERSECT | = -3.1237578 DEG |
| SPACECRAFT RADIUS | = | 1787.2152465 | KM | SPACECRAFT ALTITUDE | = 49.1252441 KM |
| MEAN ALTITUDE RATE | = | 0.0482231 | KM/SEC | TIME FROM PERIAPSIS | = 93.4401970 SEC |
| HORIZONTAL VELOCITY | = | 1.9133372 | KM/SEC | TRUE ANOMALY | = 5.7411966 DEG |
| SCALE FACTOR (HIGH) | = | 0.0124063 | M/KM | TILT DISTANCE (HIGH) | = 25.2653043 MM |
| SCALE FACTOR (LOW) | = | 0.0016271 | M/KM | TILT DISTANCE (LOW) | = 3.3134825 MM |
| IMAGE MOTION COMPENSATION (V/H) | = | 0.0389237 | RAD/SEC | SWING ANGLE | = 199.6893692 DEG |
| EMISSION ANGLE | = | 2.4388441 | DEG | INCIDENCE ANGLE | = 66.8860016 DEG |
| PHASE ANGLE | = | 68.4754801 | DEG | NORTH DEVIATION ANGLE | = 339.1378784 DEG |
| TILT ANGLE | = | 2.3717514 | DEG | RESOLUTION CONSTANT | = 1.0669578 MIR |
| TILT AZIMUTH | = | 46.5283346 | DEG | SUN AZIMUTH AT PRINCIPAL GND PT | = 93.2362356 DEG |
| SUN ANGLE AT NADIR | = | 66.9293833 | DEG | SUN ARC AT NADIR | = 2030.3291931 KM |
| LONGITUDE DISTANCE TO TARGET | = | 0.0815711 | DEG | LATITUDE DISTANCE TO TARGET | = -0.0217392 DEG |
| LONGITUDE ARC LENGTH TO TARGET | = | 2.4744914 | KM | LATITUDE ARC LENGTH TO TARGET | = -0.6594658 KM |
| FORWARD OVERLAP RATIO | = | 5.2646154 | PCT | SIDE OVERLAP RATIO | = 0. PCT |
| TIME BETWEEN PHOTOS | = | 2.1996260 | SEC | ALPHA | = -1.6020825 DEG. |

| | X | Y | Z | MAGNITUDE (KM) |
|---|---|---|---|---|
| DIRECTION COSINES TO TARGET | -0.93618694 | 0.34473591 | 0.06863789 | 49.19362354 |
| CAMERA AXIS | -0.90546453 | 0.41547487 | 0.09668690 | 49.16856384 |
| C1 | -0.83497272 | 0.49820106 | 0.23370124 | 50.42477417 |
| C2 | -0.91361127 | 0.39537077 | -0.09484929 | 49.70259034 |
| C3 | -0.94569035 | 0.31886104 | -0.06322502 | 49.63865662 |
| C4 | -0.86705179 | 0.42169133 | 0.26532550 | 50.35893250 |

| | X | Y | Z | X DOT | Y DOT | Z DOT |
|---|---|---|---|---|---|---|
| STATE VECTOR (1950.0) | -176.5199127 | -1604.0839081 | -768.0455093 | 1.7898760 | 0.0723440 | -0.6743467 |

LONG -22.2818 DEG
LATI -2.6912 DEG

(1)

40.38108 KM

LONG -22.7732 DEG
LATI -3.9287 DEG

(2)

LOW RESOLUTION

34.49215 KM

33.37650 KM

(4)

39.98066 KM

(3)

LONG -23.3481 DEG
LATI -2.2936 DEG

LONG -23.8014 DEG
LATI -3.5314 DEG

LONG -22.9840 DEG
LATI -2.8725 DEG

(1)

17.69347 KM

LONG -23.0929 DEG
LATI -3.4171 DEG

(2)

HIGH RESOLUTION

4.47456 KM

4.41051 KM

(4)

17.67050 KM

(3)

LONG -23.0222 DEG
LATI -2.8204 DEG

LONG -23.2289 DEG
LATI -3.3651 DEG

LOW RESOLUTION 157

| INDEX | LONGITUDE | LATITUDE |
|---|---|---|
| 1 | -22.2818253 | -2.6911534 |
| 2 | -22.3320577 | -2.8163832 |
| 3 | -22.3795173 | -2.9349758 |
| 4 | -22.4248903 | -3.0485917 |
| 5 | -22.4687538 | -3.1586516 |
| 6 | -22.5116167 | -3.2664115 |
| 7 | -22.5539398 | -3.3730274 |
| 8 | -22.5961709 | -3.4796074 |
| 9 | -22.6387367 | -3.5872537 |
| 10 | -22.6820982 | -3.6971199 |
| 11 | -22.7267404 | -3.8104523 |
| 12 | -22.7731993 | -3.9286573 |
| 13 | -22.8229918 | -3.8898012 |
| 14 | -22.9691880 | -3.8524076 |
| 15 | -23.0626762 | -3.8161231 |
| 16 | -23.1542554 | -3.7806351 |
| 17 | -23.2446530 | -3.7456569 |
| 18 | -23.3345690 | -3.7109202 |
| 19 | -23.4246831 | -3.6761580 |
| 20 | -23.5156817 | -3.6411089 |
| 21 | -23.6082854 | -3.6054989 |
| 22 | -23.7032523 | -3.5690376 |
| 23 | -23.8014331 | -3.5314058 |
| 24 | -23.7577198 | -3.4134749 |
| 25 | -23.7158952 | -3.3003422 |
| 26 | -23.6754229 | -3.1906127 |
| 27 | -23.6358418 | -3.0830440 |
| 28 | -23.5967255 | -2.9764905 |
| 29 | -23.5576634 | -2.8698491 |
| 30 | -23.5182533 | -2.7620123 |
| 31 | -23.4780781 | -2.6518226 |
| 32 | -23.4366839 | -2.5380189 |
| 33 | -23.3935647 | -2.4191727 |
| 34 | -23.3481236 | -2.2936116 |
| 35 | -23.2465997 | -2.3319956 |
| 36 | -23.1483440 | -2.3690366 |
| 37 | -23.0524890 | -2.4050718 |
| 38 | -22.9582360 | -2.4404061 |
| 39 | -22.8648500 | -2.4753211 |
| 40 | -22.7716181 | -2.5100842 |
| 41 | -22.6778293 | -2.5449583 |
| 42 | -22.5827599 | -2.5802123 |
| 43 | -22.4856381 | -2.6161229 |
| 44 | -22.3856406 | -2.6529931 |

HIGH RESOLUTION 157

| INDEX | LONGITUDE | LATITUDE |
|---|---|---|
| 1 | -22.8839884 | -2.8724548 |
| 2 | -22.9035568 | -2.9234592 |
| 3 | -22.9228795 | -2.9738259 |
| 4 | -22.9420006 | -3.0236760 |
| 5 | -22.9609644 | -3.0731232 |
| 6 | -22.9798193 | -3.1222801 |
| 7 | -22.9985988 | -3.1712551 |
| 8 | -23.0173512 | -3.2201549 |
| 9 | -23.0361137 | -3.2690873 |
| 10 | -23.0549309 | -3.3181579 |
| 11 | -23.0738401 | -3.3674753 |
| 12 | -23.0928829 | -3.4171495 |
| 13 | -23.1052728 | -3.4124068 |
| 14 | -23.1176560 | -3.4076684 |
| 15 | -23.1300254 | -3.4029342 |
| 16 | -23.1423914 | -3.3982026 |
| 17 | -23.1547472 | -3.3934727 |
| 18 | -23.1671031 | -3.3887462 |
| 19 | -23.1794555 | -3.3840197 |
| 20 | -23.1918077 | -3.3792932 |
| 21 | -23.2041602 | -3.3745676 |
| 22 | -23.2165196 | -3.3698403 |
| 23 | -23.2288821 | -3.3651103 |
| 24 | -23.2100136 | -3.3154421 |
| 25 | -23.1912854 | -3.2661290 |
| 26 | -23.1726561 | -3.2170609 |
| 27 | -23.1540813 | -3.1681302 |
| 28 | -23.1355202 | -3.1192304 |
| 29 | -23.1169319 | -3.0702545 |
| 30 | -23.0982821 | -3.0210942 |
| 31 | -23.0795231 | -2.9716419 |
| 32 | -23.0606170 | -2.9217875 |
| 33 | -23.0415130 | -2.8714123 |
| 34 | -23.0221734 | -2.8203993 |
| 35 | -23.0096126 | -2.8251344 |
| 36 | -22.9970622 | -2.8298686 |
| 37 | -22.9845116 | -2.8345993 |
| 38 | -22.9719577 | -2.8393284 |
| 39 | -22.9594073 | -2.8440574 |
| 40 | -22.9468567 | -2.8487865 |
| 41 | -22.9342961 | -2.8535164 |
| 42 | -22.9217353 | -2.8582471 |
| 43 | -22.9091644 | -2.8629796 |
| 44 | -22.8965831 | -2.8677155 |

**********
* PHOTO FRAME NUMBER 6 OF 8 *
********** FRAME 158

| | YEAR | MONTH | DAY | HOUR | MINUTE | SECOND |
|---|---|---|---|---|---|---|
| GMT | 67 | 2 | 20 | 22 | 8 | 56.999 |

| | | | | | |
|---|---|---|---|---|---|
| LONGITUDE OF NADIR POINT | = | -22.9754524 | DEG | LATITUDE OF NADIR POINT | = -3.2197298 DEG |
| LONG OF CAMERA AXIS INTERSECT | = | -22.9281249 | DEG | LATI OF CAMERA AXIS INTERSECT | = -3.1699881 DEG |
| SPACECRAFT RADIUS | = | 1787.3225708 | KM | SPACECRAFT ALTITUDE | = 49.2325745 KM |
| MEAN ALTITUDE RATE | = | 0.0493520 | KM/SEC | TIME FROM PERIAPSIS | = 95.6389795 SEC |
| HORIZONTAL VELOCITY | = | 1.9132225 | KM/SEC | TRUE ANOMALY | = 5.8760601 DEG |
| SCALE FACTOR (HIGH) | = | 0.0123788 | M/KM | TILT DISTANCE (HIGH) | = 25.7850752 MM |
| SCALE FACTOR (LOW) | = | 0.0016234 | M/KM | TILT DISTANCE (LOW) | = 3.3816492 MM |
| IMAGE MOTION COMPENSATION (V/H) | = | 0.0188364 | RAD/SEC | SWING ANGLE | = 202.6986790 DEG |
| EMISSION ANGLE | = | 2.4891078 | DEG | INCIDENCE ANGLE | = 66.7560482 DEG |
| PHASE ANGLE | = | 68.4754801 | DEG | NORTH DEVIATION ANGLE | = 339.1464272 DEG |
| TILT ANGLE | = | 2.4204869 | DEG | RESOLUTION CONSTANT | = 1.0693280 MTR |
| TILT AZIMUTH | = | 43.5277967 | DEG | SUN AZIMUTH AT PRINCIPAL GND PT | = 90.2082415 DEG |
| SUN ANGLE AT NADIR | = | 66.8031225 | DEG | SUN ARC AT NADIR | = 2026.4990082 KM |
| LONGITUDE DISTANCE TO TARGET | = | 0.2075477 | DEG | LATITUDE DISTANCE TO TARGET | = -0.0697298 DEG |
| LONGITUDE ARC LENGTH TO TARGET | = | 6.2960400 | KM | LATITUDE ARC LENGTH TO TARGET | = -2.1152832 KM |
| FORWARD OVERLAP RATIO | = | 5.5180097 | PCT | SIDE OVERLAP RATIO | = 0. PCT |
| TIME BETWEEN PHOTOS | = | 2.2002697 | SEC | ALPHA | = -1.7314268 DEG. |

| | X | Y | Z | MAGNITUDE (KM) |
|---|---|---|---|---|
| DIRECTION COSINES TO TARGET | -0.95817753 | 0.26881578 | 0.09815244 | 49.68995762 |
| CAMERA AXIS | -0.90546228 | 0.41547976 | 0.08668698 | 49.27778625 |
| C1 | -0.83497000 | 0.49820556 | 0.23370132 | 50.54246521 |
| C2 | -0.91360914 | 0.39537572 | -0.09484921 | 49.81846619 |
| C3 | -0.94568863 | 0.31886616 | -0.06322493 | 49.74354553 |
| C4 | -0.86704950 | 0.42169600 | 0.26532558 | 50.46531677 |

| | X | Y | Z | X DOT | Y DOT | Z DOT |
|---|---|---|---|---|---|---|
| STATE VECTOR (1950.0) | -172.5818119 | -1603.9220734 | -769.5268173 | 1.7902059 | 0.0750749 | -0.6725941 |

LONG -22.1497 DEG
LATI -2.7389 DEG

(1) * 40.50546 KM * (2)

LONG -22.6425 DEG
LATI -3.9803 DEG

LOW RESOLUTION

34.57108 KM 33.45263 KM

(4) * 40.03631 KM * (3)

LONG -23.2190 DEG
LATI -2.3418 DEG

LONG -23.6728 DEG
LATI -3.5813 DEG

LONG -22.7540 DEG
LATI -2.9211 DEG

(1) * 17.73475 KM * (2)

LONG -22.9633 DEG
LATI -3.4671 DEG

HIGH RESOLUTION

4.48469 KM 4.42048 KM

(4) * 17.70783 KM * (3)

LONG -22.8925 DEG
LATI -2.8690 DEG

LONG -23.0996 DEG
LATI -3.4149 DEG

LOW RESOLUTION 158

| INDEX | LONGITUDE | LATITUDE |
|---|---|---|
| 1 | -22.1497431 | -2.7389118 |
| 2 | -22.2001224 | -2.8645394 |
| 3 | -22.2477221 | -2.9835043 |
| 4 | -22.2932281 | -3.0974762 |
| 5 | -22.3372180 | -3.2078803 |
| 6 | -22.3802004 | -3.3159774 |
| 7 | -22.4226432 | -3.4229253 |
| 8 | -22.4649904 | -3.5298374 |
| 9 | -22.5076790 | -3.6378202 |
| 10 | -22.5511565 | -3.7480270 |
| 11 | -22.5959218 | -3.8617129 |
| 12 | -22.6425104 | -3.9802876 |
| 13 | -22.7426546 | -3.9412078 |
| 14 | -22.8391652 | -3.9036101 |
| 15 | -22.9329267 | -3.8671404 |
| 16 | -23.0247447 | -3.8314808 |
| 17 | -23.1153576 | -3.7963463 |
| 18 | -23.2054546 | -3.7614611 |
| 19 | -23.2957258 | -3.7265622 |
| 20 | -23.3868575 | -3.6913868 |
| 21 | -23.4795637 | -3.6556572 |
| 22 | -23.5746093 | -3.6190841 |
| 23 | -23.6728411 | -3.5813490 |
| 24 | -23.6290834 | -3.4632448 |
| 25 | -23.5872109 | -3.3499490 |
| 26 | -23.5466909 | -3.2400598 |
| 27 | -23.5070655 | -3.1323358 |
| 28 | -23.4679046 | -3.0256295 |
| 29 | -23.4287949 | -2.9188360 |
| 30 | -23.3893437 | -2.8108456 |
| 31 | -23.3491209 | -2.7004997 |
| 32 | -23.3076787 | -2.5865354 |
| 33 | -23.2645085 | -2.4675210 |
| 34 | -23.2190125 | -2.3417850 |
| 35 | -23.1173656 | -2.3800716 |
| 36 | -23.0189598 | -2.4170306 |
| 37 | -22.9229271 | -2.4529975 |
| 38 | -22.8284726 | -2.4882754 |
| 39 | -22.7348545 | -2.5231436 |
| 40 | -22.6413629 | -2.5578708 |
| 41 | -22.5472872 | -2.5927184 |
| 42 | -22.4518936 | -2.6279562 |
| 43 | -22.3544164 | -2.6638608 |
| 44 | -22.2540126 | -2.7007353 |

HIGH RESOLUTION 158

| INDEX | LONGITUDE | LATITUDE |
|---|---|---|
| 1 | -22.7539518 | -2.9210781 |
| 2 | -22.7735612 | -2.9722046 |
| 3 | -22.7929213 | -3.0226908 |
| 4 | -22.8120835 | -3.0726596 |
| 5 | -22.8310885 | -3.1222254 |
| 6 | -22.8499808 | -3.1714984 |
| 7 | -22.8688014 | -3.2205904 |
| 8 | -22.8875911 | -3.2696064 |
| 9 | -22.9063914 | -3.3186548 |
| 10 | -22.9252460 | -3.3678424 |
| 11 | -22.9441931 | -3.4172768 |
| 12 | -22.9632766 | -3.4670705 |
| 13 | -22.9756973 | -3.4623133 |
| 14 | -22.9881043 | -3.4575612 |
| 15 | -23.0005045 | -3.4528125 |
| 16 | -23.0128980 | -3.4480672 |
| 17 | -23.0252845 | -3.4433245 |
| 18 | -23.0376675 | -3.4385844 |
| 19 | -23.0500474 | -3.4338442 |
| 20 | -23.0624270 | -3.4291058 |
| 21 | -23.0748067 | -3.4243665 |
| 22 | -23.0871899 | -3.4196272 |
| 23 | -23.0995765 | -3.4148853 |
| 24 | -23.0806739 | -3.3651095 |
| 25 | -23.0619147 | -3.3156888 |
| 26 | -23.0432479 | -3.2665149 |
| 27 | -23.0246389 | -3.2174775 |
| 28 | -23.0060472 | -3.1684726 |
| 29 | -22.9874246 | -3.1193900 |
| 30 | -22.9687407 | -3.0701256 |
| 31 | -22.9499440 | -3.0205657 |
| 32 | -22.9310038 | -2.9706029 |
| 33 | -22.9118657 | -2.9201201 |
| 34 | -22.8924885 | -2.8689970 |
| 35 | -22.8799005 | -2.8737337 |
| 36 | -22.8673193 | -2.8784679 |
| 37 | -22.8547347 | -2.8832012 |
| 38 | -22.8421533 | -2.8879328 |
| 39 | -22.8295722 | -2.8926636 |
| 40 | -22.8169875 | -2.8973952 |
| 41 | -22.8043962 | -2.9021277 |
| 42 | -22.7918012 | -2.9068619 |
| 43 | -22.7791960 | -2.9115969 |
| 44 | -22.7665808 | -2.9163362 |

**********
* PHOTO FRAME NUMBER 7 OF 8 *
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## FRAME 159

| | YEAR | MONTH | DAY | HOUR | MINUTE | SECOND |
|---|---|---|---|---|---|---|
| GMT | 67 | 2 | 23 | 22 | 8 | 59.199 |

| | | | | | |
|---|---|---|---|---|---|
| LONGITUDE OF NADIR POINT | = | -22.8495331 DEG | LATITUDE OF NADIR POINT | = | -3.2676760 DEG |
| LONG OF CAMERA AXIS INTERSECT | = | -22.7985222 DEG | LATI OF CAMERA AXIS INTERSECT | = | -3.2191765 DEG |
| SPACECRAFT RADIUS | = | 1787.4323578 KM | SPACECRAFT ALTITUDE | = | 49.3423615 KM |
| MEAN ALTITUDE RATE | = | 0.0504800 KM/SEC | TIME FROM PERIAPSIS | = | 97.8367605 SEC |
| HORIZONTAL VELOCITY | = | 1.9131051 KM/SEC | TRUE ANOMALY | = | 6.0108460 DEG |
| SCALE FACTOR (HIGH) | = | 0.0123507 M/KM | TILT DISTANCE (HIGH) | = | 26.3735945 MM |
| SCALE FACTOR (LOW) | = | 0.0016198 M/KM | TILT DISTANCE (LOW) | = | 3.4588321 MM |
| IMAGE MOTION COMPENSATION (V/H) | = | 0.0387472 RAD/SEC | SWING ANGLE | = | 205.5797234 DEG |
| EMISSION ANGLE | = | 2.5459995 DEG | INCIDENCE ANGLE | = | 66.6261721 DEG |
| PHASE ANGLE | = | 68.4754820 DEG | NORTH DEVIATION ANGLE | = | 339.1551971 DEG |
| TILT ANGLE | = | 2.4756642 DEG | RESOLUTION CONSTANT | = | 1.0717580 MIR |
| TILT AZIMUTH | = | 46.3991628 DEG | SUN AZIMUTH AT PRINCIPAL GND PT | = | 90.1799974 DEG |
| SUN ANGLE AT NADIR | = | 66.6769514 DEG | SUN ARC AT NADIR | = | 2022.6715698 KM |
| LONGITUDE DISTANCE TO TARGET | = | 0.3334670 DEG | LATITUDE DISTANCE TO TARGET | = | -0.1176760 DEG |
| LONGITUDE ARC LENGTH TO TARGET | = | 10.1158528 KM | LATITUDE ARC LENGTH TO TARGET | = | -3.5697474 KM |
| FORWARD OVERLAP RATIO | = | 5.7749996 PCT | SIDE OVERLAP RATIO | = | 0. PCT |
| TIME BETWEEN PHOTOS | = | 2.1996260 SEC | ALPHA | = | -1.8607080 DEG. |

| | X | Y | Z | MAGNITUDE (KM) |
|---|---|---|---|---|
| DIRECTION COSINES TO TARGET | -0.97303315 | 0.19307280 | 0.12621171 | 50.52409697 |
| CAMERA AXIS | -0.90546001 | 0.41548467 | 0.08668704 | 49.38977051 |
| C1 | -0.88496729 | 0.49821009 | 0.23370139 | 50.66299438 |
| C2 | -0.91360700 | 0.39538069 | -0.09484915 | 49.93711853 |
| C3 | -0.94568690 | 0.31887130 | -0.06322487 | 49.85118103 |
| C4 | -0.86704718 | 0.42170069 | 0.26532564 | 50.57450867 |

| | X | Y | Z | X DOT | Y DOT | Z DOT |
|---|---|---|---|---|---|---|
| STATE VECTOR (1950.0) | -168.6447983 | -1603.7536621 | -771.0042572 | 1.7905282 | 0.0781035 | -0.6711397 |

LONG -22.0177 DEG
LATI -2.7866 DEG

LONG -22.5118 DEG
LATI -4.0319 DEG

* 40.63230 KM *
(1) (2)

LOW RESOLUTION

34.65225 KM 33.53094 KM

(4) (3)
* 40.09413 KM *

LONG -23.0900 DEG
LATI -2.3899 DEG

LONG -23.5443 DEG
LATI -3.6313 DEG

LONG -22.6240 DEG
LATI -2.9696 DEG

LONG -22.8337 DEG
LATI -3.5170 DEG

* 17.77702 KM *
(1) (2)

HIGH RESOLUTION

4.49509 KM 4.43072 KM

(4) (3)
* 17.74614 KM *

LONG -22.7628 DEG
LATI -2.9175 DEG

LONG -22.9703 DEG
LATI -3.4646 DEG

LOW RESOLUTION 159

| INDEX | LONGITUDE | LATITUDE |
|---|---|---|
| 1 | -22.0176573 | -2.7866027 |
| 2 | -22.0681837 | -2.9126325 |
| 3 | -22.1159267 | -3.0319781 |
| 4 | -22.1615660 | -3.1463138 |
| 5 | -22.2056823 | -3.2570687 |
| 6 | -22.2487910 | -3.3655082 |
| 7 | -22.2913568 | -3.4727960 |
| 8 | -22.3338234 | -3.5800461 |
| 9 | -22.3766282 | -3.6883712 |
| 10 | -22.4202321 | -3.7989272 |
| 11 | -22.4651201 | -3.9129735 |
| 12 | -22.5118387 | -4.0319255 |
| 13 | -22.6123483 | -3.9926195 |
| 14 | -22.7091765 | -3.9548152 |
| 15 | -22.8032212 | -3.9181550 |
| 16 | -22.8952854 | -3.8823247 |
| 17 | -22.9861100 | -3.8470280 |
| 18 | -23.0763981 | -3.8119951 |
| 19 | -23.1668298 | -3.7769579 |
| 20 | -23.2581017 | -3.7416510 |
| 21 | -23.3509171 | -3.7058013 |
| 22 | -23.4460514 | -3.6691144 |
| 23 | -23.5443377 | -3.6312726 |
| 24 | -23.5005291 | -3.5129908 |
| 25 | -23.4586053 | -3.3995225 |
| 26 | -23.4180408 | -3.2894694 |
| 27 | -23.3783677 | -3.1815849 |
| 28 | -23.3391590 | -3.0747197 |
| 29 | -23.3000050 | -2.9677675 |
| 30 | -23.2605026 | -2.8596166 |
| 31 | -23.2202318 | -2.7491093 |
| 32 | -23.1787417 | -2.6349768 |
| 33 | -23.1355169 | -2.5157900 |
| 34 | -23.0899696 | -2.3898695 |
| 35 | -22.9881930 | -2.4280630 |
| 36 | -22.8896301 | -2.4649427 |
| 37 | -22.7934098 | -2.5008430 |
| 38 | -22.6987467 | -2.5360646 |
| 39 | -22.6048965 | -2.5708874 |
| 40 | -22.5111384 | -2.6055797 |
| 41 | -22.4167659 | -2.6404042 |
| 42 | -22.3210442 | -2.6756258 |
| 43 | -22.2231982 | -2.7115261 |
| 44 | -22.1223845 | -2.7484066 |

HIGH RESOLUTION 159

| INDEX | LONGITUDE | LATITUDE |
|---|---|---|
| 1 | -22.6239529 | -2.9696467 |
| 2 | -22.6435997 | -3.0208961 |
| 3 | -22.6630044 | -3.0715070 |
| 4 | -22.6822040 | -3.1215962 |
| 5 | -22.7012501 | -3.1712815 |
| 6 | -22.7201798 | -3.2206749 |
| 7 | -22.7390416 | -3.2698856 |
| 8 | -22.7578688 | -3.3190219 |
| 9 | -22.7767100 | -3.3681891 |
| 10 | -22.7956023 | -3.4174962 |
| 11 | -22.8145902 | -3.4670526 |
| 12 | -22.8337114 | -3.5169660 |
| 13 | -22.8461628 | -3.5121951 |
| 14 | -22.8586040 | -3.5074284 |
| 15 | -22.8710349 | -3.5026644 |
| 16 | -22.8834555 | -3.4979063 |
| 17 | -22.8958728 | -3.4931499 |
| 18 | -22.9082832 | -3.4883944 |
| 19 | -22.9206903 | -3.4836423 |
| 20 | -22.9330940 | -3.4788893 |
| 21 | -22.9455044 | -3.4741381 |
| 22 | -22.9579115 | -3.4693851 |
| 23 | -22.9703252 | -3.4646313 |
| 24 | -22.9513886 | -3.4147436 |
| 25 | -22.9325919 | -3.3652145 |
| 26 | -22.9138908 | -3.3159321 |
| 27 | -22.8952479 | -3.2667872 |
| 28 | -22.8766186 | -3.2176730 |
| 29 | -22.8579652 | -3.1684829 |
| 30 | -22.8392437 | -3.1191083 |
| 31 | -22.8204162 | -3.0694400 |
| 32 | -22.8014352 | -3.0193662 |
| 33 | -22.7822628 | -2.9687715 |
| 34 | -22.7628481 | -2.9175358 |
| 35 | -22.7532294 | -2.9222742 |
| 36 | -22.7376173 | -2.9270109 |
| 37 | -22.7250021 | -2.9317451 |
| 38 | -22.7123899 | -2.9364793 |
| 39 | -22.6997747 | -2.9412126 |
| 40 | -22.6871560 | -2.9459476 |
| 41 | -22.6745338 | -2.9506818 |
| 42 | -22.6619012 | -2.9554185 |
| 43 | -22.6492655 | -2.9601578 |
| 44 | -22.6366124 | -2.9649006 |

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* PHOTO FRAME NUMBER 8 OF 8 *
**********

## FRAME 160

| | YEAR | MONTH | DAY | HOUR | MINUTE | SECOND |
|---|---|---|---|---|---|---|
| GMT | 67 | 2 | 20 | 22 | 9 | 1.399 |

| | | | | | |
|---|---|---|---|---|---|
| LONGITUDE OF NADIR POINT | = | -22.7235137 | DEG | LATITUDE OF NADIR POINT | = | -3.3156444 | DEG |
| LONG OF CAMERA AXIS INTERSECT | = | -22.6687860 | DEG | LATI OF CAMERA AXIS INTERSECT | = | -3.2683936 | DEG |
| SPACECRAFT RADIUS | = | 1787.5446930 | KM | SPACECRAFT ALTITUDE | = | 49.4546967 | KM |
| MEAN ALTITUDE RATE | = | 0.0516085 | KM/SEC | TIME FROM PERIAPSIS | = | 100.0365305 | SEC |
| HORIZONTAL VELOCITY | = | 1.9129849 | KM/SEC | TRUE ANOMALY | = | 6.1457369 | DEG |
| SCALE FACTOR (HIGH) | = | 0.0123221 | M/KM | TILT DISTANCE (HIGH) | = | 27.0262969 | MM |
| SCALE FACTOR (LOW) | = | 0.0016160 | M/KM | TILT DISTANCE (LOW) | = | 3.5444324 | MM |
| IMAGE MOTION COMPENSATION (V/H) | = | 0.0386559 | RAD/SEC | SWING ANGLE | = | 208.3306887 | DEG |
| EMISSION ANGLE | = | 2.6090860 | DEG | INCIDENCE ANGLE | = | 66.4961939 | DEG |
| PHASE ANGLE | = | 68.4754820 | DEG | NORTH DEVIATION ANGLE | = | 339.1641598 | DEG |
| TILT ANGLE | = | 2.5368537 | DEG | RESOLUTION CONSTANT | = | 1.0742497 | MTR |
| TILT AZIMUTH | = | 49.1403685 | DEG | SUN AZIMUTH AT PRINCIPAL GND PT | = | 90.1514654 | DEG |
| SUN ANGLE AT NADIR | = | 66.5507021 | DEG | SUN ARC AT NADIR | = | 2018.8417511 | KM |
| LONGITUDE DISTANCE TO TARGET | = | 0.4594893 | DEG | LATITUDE DISTANCE TO TARGET | = | -0.1656444 | DEG |
| LONGITUDE ARC LENGTH TO TARGET | = | 13.9387901 | KM | LATITUDE ARC LENGTH TO TARGET | = | -5.0248882 | KM |
| FORWARD OVERLAP RATIO | = | 5.9093193 | PCT | SIDE OVERLAP RATIO | = | 0. | PCT |
| TIME BETWEEN PHOTOS | = | 2.1996260 | SEC | ALPHA | = | -1.9901006 | DEG. |

| | X | Y | Z | MAGNITUDE (KM) |
|---|---|---|---|---|
| DIRECTION COSINES TO TARGET | -0.98113455 | 0.11892495 | 0.15242001 | 51.68096304 |
| CAMERA AXIS | -0.90545776 | 0.41548958 | 0.08668713 | 49.50459290 |
| C1 | -0.83496457 | 0.49821460 | 0.23370147 | 50.78648376 |
| C2 | -0.91360486 | 0.39538566 | -0.09484906 | 50.05871582 |
| C3 | -0.94568517 | 0.31887644 | -0.06322480 | 49.96168518 |
| C4 | -0.86704489 | 0.42170537 | 0.26532572 | 50.68658447 |

| | X | Y | Z | X DOT | Y DOT | Z DOT |
|---|---|---|---|---|---|---|
| STATE VECTOR (1950.0) | -164.7035046 | -1603.5784149 | -772.4798279 | 1.7908432 | 0.0811340 | -0.6696814 |

LONG -21.8854 DEG
LATI -2.8343 DEG

LONG -22.3810 DEG
LATI -4.0836 DEG

(1) * 40.76177 KM * (2)

LOW RESOLUTION

34.73576 KM 33.61146 KM

(4) * 40.15414 KM * (3)

LONG -22.9608 DEG
LATI -2.4379 DEG

LONG -23.4157 DEG
LATI -3.6812 DEG

LONG -22.4938 DEG
LATI -3.0182 DEG

LONG -22.7040 DEG
LATI -3.5669 DEG

(1) * 17.82033 KM * (2)

HIGH RESOLUTION

4.50579 KM 4.44125 KM

(4) * 17.78547 KM * (3)

LONG -22.6331 DEG
LATI -2.9661 DEG

LONG -22.8410 DEG
LATI -3.5144 DEG

LOW RESOLUTION 160

| INDEX | LONGITUDE | LATITUDE |
|---|---|---|
| 1 | -21.0853805 | -2.8342885 |
| 2 | -21.9360673 | -2.9607299 |
| 3 | -21.9839537 | -3.0804639 |
| 4 | -22.0297298 | -3.1951710 |
| 5 | -22.0739758 | -3.3062845 |
| 6 | -22.1172109 | -3.4150732 |
| 7 | -22.1598995 | -3.5227084 |
| 8 | -22.2024891 | -3.6303035 |
| 9 | -22.2454202 | -3.7389761 |
| 10 | -22.2891471 | -3.8498898 |
| 11 | -22.3341615 | -3.9643041 |
| 12 | -22.3810132 | -4.0836402 |
| 13 | -22.4818950 | -4.0441037 |
| 14 | -22.5790477 | -4.0060894 |
| 15 | -22.6733794 | -3.9692406 |
| 16 | -22.7656963 | -3.9332318 |
| 17 | -22.8567426 | -3.8977737 |
| 18 | -22.9472256 | -3.8625889 |
| 19 | -23.0378280 | -3.8274100 |
| 20 | -23.1292398 | -3.7919698 |
| 21 | -23.2221749 | -3.7559961 |
| 22 | -23.3173981 | -3.7191942 |
| 23 | -23.4157493 | -3.6812457 |
| 24 | -23.3718858 | -3.5627777 |
| 25 | -23.3299108 | -3.4491336 |
| 26 | -23.2892952 | -3.3389080 |
| 27 | -23.2495742 | -3.2308562 |
| 28 | -23.2103176 | -3.1238271 |
| 29 | -23.1711159 | -3.0167101 |
| 30 | -23.1315656 | -2.9083952 |
| 31 | -23.0912435 | -2.7977189 |
| 32 | -23.0496988 | -2.6834122 |
| 33 | -23.0064228 | -2.5640453 |
| 34 | -22.9608142 | -2.4379352 |
| 35 | -22.8589010 | -2.4760357 |
| 36 | -22.7601774 | -2.5128368 |
| 37 | -22.6637692 | -2.5486714 |
| 38 | -22.5688913 | -2.5838392 |
| 39 | -22.4747951 | -2.6186194 |
| 40 | -22.3807673 | -2.6532783 |
| 41 | -22.2860940 | -2.6880781 |
| 42 | -22.1900377 | -2.7232869 |
| 43 | -22.0918162 | -2.7591838 |
| 44 | -21.9905825 | -2.7960728 |

HIGH RESOLUTION 160

| INDEX | LONGITUDE | LATITUDE |
|---|---|---|
| 1 | -22.4938068 | -3.0182247 |
| 2 | -22.5135019 | -3.0696022 |
| 3 | -22.5329440 | -3.1203377 |
| 4 | -22.5521879 | -3.1705516 |
| 5 | -22.5712750 | -3.2203616 |
| 6 | -22.5902457 | -3.2698770 |
| 7 | -22.6091449 | -3.3192098 |
| 8 | -22.6280167 | -3.3684674 |
| 9 | -22.6468954 | -3.4177583 |
| 10 | -22.6658320 | -3.4671875 |
| 11 | -22.6848543 | -3.5168661 |
| 12 | -22.7040195 | -3.5669049 |
| 13 | -22.7165020 | -3.5621178 |
| 14 | -22.7289739 | -3.5573358 |
| 15 | -22.7414355 | -3.5525598 |
| 16 | -22.7538869 | -3.5477855 |
| 17 | -22.7663314 | -3.5430154 |
| 18 | -22.7787726 | -3.5382471 |
| 19 | -22.7912071 | -3.5334805 |
| 20 | -22.8036413 | -3.5287147 |
| 21 | -22.8160791 | -3.5239490 |
| 22 | -22.8285136 | -3.5191832 |
| 23 | -22.8409512 | -3.5144166 |
| 24 | -22.8219805 | -3.4644170 |
| 25 | -22.8031497 | -3.4147761 |
| 26 | -22.7844143 | -3.3653810 |
| 27 | -22.7657337 | -3.3161242 |
| 28 | -22.7470670 | -3.2668982 |
| 29 | -22.7283762 | -3.2175970 |
| 30 | -22.7096205 | -3.1681106 |
| 31 | -22.6907554 | -3.1183305 |
| 32 | -22.6717367 | -3.0681431 |
| 33 | -22.6525269 | -3.0174350 |
| 34 | -22.6330779 | -2.9660822 |
| 35 | -22.6204283 | -2.9708232 |
| 36 | -22.6077824 | -2.9755616 |
| 37 | -22.5951362 | -2.9802983 |
| 38 | -22.5824902 | -2.9850342 |
| 39 | -22.5698440 | -2.9897718 |
| 40 | -22.5571911 | -2.9945086 |
| 41 | -22.5445313 | -2.9992470 |
| 42 | -22.5318682 | -3.0039863 |
| 43 | -22.5191948 | -3.0087281 |
| 44 | -22.5065076 | -3.0134743 |

**********
* PHOTO FRAME NUMBER 1 OF 1 *
**********

## FRAME 161

| | YEAR | MONTH | DAY | HOUR | MINUTE | SECOND |
|---|---|---|---|---|---|---|
| GMT | 67 | 2 | 21 | 1 | 33 | 37.900 |

| | | | | | |
|---|---|---|---|---|---|
| LONGITUDE OF NADIR POINT | = | -37.7587822 | DEG | LATITUDE OF NADIR POINT | = 1.6597069 DEG |
| LONG OF CAMERA AXIS INTERSECT | = | -41.8628230 | DEG | LATI OF CAMERA AXIS INTERSECT | = 1.6266095 DEG |
| SPACECRAFT RADIUS | = | 1789.9346326 | KM | SPACECRAFT ALTITUDE | = 51.8146362 KM |
| MEAN ALTITUDE RATE | = | -0.0685768 | KM/SEC | TIME FROM PERIAPSIS | = -133.3421974 SEC |
| HORIZONTAL VELOCITY | = | 1.9105403 | KM/SEC | TRUE ANOMALY | = 351.8172112 DEG |
| SCALE FACTOR (HIGH) | = | 0.0046631 | M/KM | TILT DISTANCE (HIGH) | = 1292.1469116 MM |
| SCALE FACTOR (LOW) | = | 0.0006116 | M/KM | TILT DISTANCE (LOW) | = 169.4618912 MM |
| IMAGE MOTION COMPENSATION (V/H) | = | 0.0069921 | RAD/SEC | SWING ANGLE | = 81.5883150 DEG |
| EMISSION ANGLE | = | 68.6314020 | DEG | INCIDENCE ANGLE | = 84.0510664 DEG |
| PHASE ANGLE | = | 15.5607768 | DEG | NORTH DEVIATION ANGLE | = 351.7857056 DEG |
| TILT ANGLE | = | 64.7288208 | DEG | RESOLUTION CONSTANT | = 2.8386638 MIR |
| TILT AZIMUTH | = | 269.5702362 | DEG | SUN AZIMUTH AT PRINCIPAL GND PT | = 91.6176443 DEG |
| SUN ANGLE AT NADIR | = | 80.1512833 | DEG | SUN ARC AT NADIR | = 2431.4207153 KM |
| LONGITUDE DISTANCE TO TARGET | = | 4.0412178 | DEG | LATITUDE DISTANCE TO TARGET | = -0.0902931 DEG |
| LONGITUDE ARC LENGTH TO TARGET | = | 122.5919304 | KM | LATITUDE ARC LENGTH TO TARGET | = -2.7390765 KM |
| FORWARD OVERLAP RATIO | = | 0. | PCT | SIDE OVERLAP RATIO | = 0. PCT |
| TIME BETWEEN PHOTOS | = | 0. | SEC | ALPHA | = 68.4391079 DEG. |

| | X | Y | Z | MAGNITUDE (KM) |
|---|---|---|---|---|
| DIRECTION COSINES TO TARGET | -0.88788041 | -0.45999266 | 0.00918282 | 134.71902084 |
| CAMERA AXIS | -0.89250967 | -0.45062176 | -0.01914444 | 130.81400299 |
| C1 | -0.91360778 | -0.37883284 | 0.14767028 | 113.16902161 |
| C2 | -0.88076274 | -0.42910209 | -0.20032073 | 127.50002289 |
| C3 | -0.84157861 | -0.50734825 | -0.18531924 | 164.29941559 |
| C4 | -0.87442363 | -0.45707899 | 0.16267176 | 140.19073486 |

| | X | Y | Z | X DOT | Y DOT | Z DOT |
|---|---|---|---|---|---|---|
| STATE VECTOR (1950.0) | -574.9710770 | -1583.6728058 | -604.2742157 | 1.7194257 | -0.2414660 | -0.8030855 |

LONG -39.5830 DEG
LATI 2.4221 DEG

LONG -39.9749 DEG
LATI 0.4763 DEG

(1) * 60.20766 KM * (2)

LONG -41.1737 DEG
LATI 2.2604 DEG

LONG -41.6608 DEG
LATI 0.8670 DEG

(1) * 44.77423 KM * (2)

LOW RESOLUTION

296.54525 KM 88.66625 KM

(4) * 209.30891 KM * (3)

LONG -48.9680 DEG
LATI 6.3873 DEG

LONG -46.6769 DEG
LATI -1.8783 DEG

HIGH RESOLUTION

29.24444 KM 38.97855 KM

(4) * 58.76697 KM * (3)

LONG -42.1173 DEG
LATI 2.4615 DEG

LONG -42.9356 DEG
LATI 0.7053 DEG

LOW RESOLUTION 161

| INDEX | LONGITUDE | LATITUDE |
|---|---|---|
| 1 | -39.5829911 | 2.4220815 |
| 2 | -39.6135697 | 2.2559824 |
| 3 | -39.6440153 | 2.0934179 |
| 4 | -39.6746387 | 1.9325747 |
| 5 | -39.7057638 | 1.7717177 |
| 6 | -39.7377429 | 1.6091080 |
| 7 | -39.7709546 | 1.4429295 |
| 8 | -39.8058395 | 1.2711989 |
| 9 | -39.8429346 | 1.0916597 |
| 10 | -39.8828773 | 0.9016456 |
| 11 | -39.9264984 | 0.6979002 |
| 12 | -39.9748764 | 0.4762930 |
| 13 | -40.2622023 | 0.3810426 |
| 14 | -40.6060576 | 0.2663603 |
| 15 | -41.0304790 | 0.1237733 |
| 16 | -41.5764432 | -0.0613163 |
| 17 | -42.3221121 | -0.3171137 |
| 18 | -43.4473243 | -0.7096097 |
| 19 | -45.5761099 | -1.4730865 |
| 20 | 0. | 0. |
| 21 | 0. | 0. |
| 22 | 0. | 0. |
| 23 | 0. | 0. |
| 24 | 0. | 0. |
| 25 | 0. | 0. |
| 26 | 0. | 0. |
| 27 | 0. | 0. |
| 28 | 0. | 0. |
| 29 | 0. | 0. |
| 30 | 0. | 0. |
| 31 | 0. | 0. |
| 32 | 0. | 0. |
| 33 | 0. | 0. |
| 34 | 0. | 0. |
| 35 | 0. | 0. |
| 36 | -45.9889469 | 5.1386116 |
| 37 | -43.5546470 | 4.1098494 |
| 38 | -42.3701453 | 3.6073507 |
| 39 | -41.6090508 | 3.2839993 |
| 40 | -41.0619898 | 3.0514049 |
| 41 | -40.6422167 | 2.8728501 |
| 42 | -40.3055158 | 2.7295894 |
| 43 | -40.0264378 | 2.6108252 |
| 44 | -39.7891026 | 2.5098119 |

CORNER 3 , 4 OF LOW RESOLUTION FRAME 1 IS OFF THE MOON

HIGH RESOLUTION 161

| INDEX | LONGITUDE | LATITUDE |
|---|---|---|
| 1 | -41.1736875 | 2.2604297 |
| 2 | -41.2110519 | 2.1445889 |
| 3 | -41.2493248 | 2.0276893 |
| 4 | -41.2886295 | 1.9094092 |
| 5 | -41.3291049 | 1.7894130 |
| 6 | -41.3709059 | 1.6673397 |
| 7 | -41.4141989 | 1.5428057 |
| 8 | -41.4591794 | 1.4153928 |
| 9 | -41.5060582 | 1.2846433 |
| 10 | -41.5550885 | 1.1500536 |
| 11 | -41.6065440 | 1.0110601 |
| 12 | -41.6607585 | 0.8670285 |
| 13 | -41.7502680 | 0.8558901 |
| 14 | -41.8437905 | 0.8442165 |
| 15 | -41.9416466 | 0.8319623 |
| 16 | -42.0441985 | 0.8190771 |
| 17 | -42.1518559 | 0.8055047 |
| 18 | -42.2650700 | 0.7911801 |
| 19 | -42.3843589 | 0.7760299 |
| 20 | -42.5103211 | 0.7599678 |
| 21 | -42.6436400 | 0.7428966 |
| 22 | -42.7850928 | 0.7247044 |
| 23 | -42.9356031 | 0.7052580 |
| 24 | -42.8379893 | 0.8940034 |
| 25 | -42.7470522 | 1.0742000 |
| 26 | -42.6618834 | 1.2470141 |
| 27 | -42.5817142 | 1.4134479 |
| 28 | -42.5059123 | 1.5743680 |
| 29 | -42.4339395 | 1.7305326 |
| 30 | -42.3653369 | 1.8826187 |
| 31 | -42.2996988 | 2.0312282 |
| 32 | -42.2366834 | 2.1769102 |
| 33 | -42.1759872 | 2.3201674 |
| 34 | -42.1173429 | 2.4614669 |
| 35 | -42.0110822 | 2.4389119 |
| 36 | -41.9099135 | 2.4174165 |
| 37 | -41.8134303 | 2.3969003 |
| 38 | -41.7212672 | 2.3772866 |
| 39 | -41.6331067 | 2.3585095 |
| 40 | -41.5486479 | 2.3405086 |
| 41 | -41.4676418 | 2.3232299 |
| 42 | -41.3898458 | 2.3066249 |
| 43 | -41.3150487 | 2.2906490 |
| 44 | -41.2430549 | 2.2752640 |

**********
* PHOTO FRAME NUMBER 1 OF 1 *
**********

## FRAME 162

| | YEAR | MONTH | DAY | HOUR | MINUTE | SECOND |
|---|---|---|---|---|---|---|
| GMT | 67 | 2 | 21 | 5 | 2 | 1.400 |

| | | | | | |
|---|---|---|---|---|---|
| LONGITUDE OF NADIR POINT | = | -40.1674156 | DEG | LATITUDE OF NADIR POINT | = 1.7657541 DEG |
| LONG OF CAMERA AXIS INTERSECT | = | -38.3216839 | DEG | LATI OF CAMERA AXIS INTERSECT | = 6.5428797 DEG |
| SPACECRAFT RADIUS | = | 1790.7904663 | KM | SPACECRAFT ALTITUDE | = 52.7004700 KM |
| MEAN ALTITUDE RATE | = | -0.0716712 | KM/SEC | TIME FROM PERIAPSIS | = -139.5665016 SEC |
| HORIZONTAL VELOCITY | = | 1.9097186 | KM/SEC | TRUE ANOMALY | = 351.4404221 DEG |
| SCALE FACTOR (HIGH) | = | 0.0036711 | M/KM | TILT DISTANCE (HIGH) | = 1586.4419403 MM |
| SCALE FACTOR (LOW) | = | 0.0004815 | M/KM | TILT DISTANCE (LOW) | = 208.0579605 MM |
| IMAGE MOTION COMPENSATION (V/H) | = | 0.0114972 | RAD/SEC | SWING ANGLE | = 176.9017544 DEG |
| EMISSION ANGLE | = | 74.0871859 | DEG | INCIDENCE ANGLE | = 78.9518967 DEG |
| PHASE ANGLE | = | 104.1954346 | DEG | NORTH DEVIATION ANGLE | = 302.2290840 DEG |
| TILT ANGLE | = | 68.9678364 | DEG | RESOLUTION CONSTANT | = 3.6056870 MTR |
| TILT AZIMUTH | = | 21.0145807 | DEG | SUN AZIMUTH AT PRINCIPAL GND PT | = 92.7584276 DEG |
| SUN ANGLE AT NADIR | = | 80.6050148 | DEG | SUN ARC AT NADIR | = 2445.1848450 KM |
| LONGITUDE DISTANCE TO TARGET | = | -2.3344154 | DEG | LATITUDE DISTANCE TO TARGET | = -6.4012459 DEG |
| LONGITUDE ARC LENGTH TO TARGET | = | -70.8154106 | KM | LATITUDE ARC LENGTH TO TARGET | = -194.1843109 KM |
| FORWARD OVERLAP RATIO | = | 0. | PCT | SIDE OVERLAP RATIO | = 0. PCT |
| TIME BETWEEN PHOTOS | = | 0. | SEC | ALPHA | = -44.2428808 DEG. |

| | X | Y | Z | MAGNITUDE (KM) |
|---|---|---|---|---|
| DIRECTION COSINES TO TARGET | -0.04156177 | 0.45944633 | 0.88723261 | 216.09978867 |
| CAMERA AXIS | -0.07873888 | 0.50447781 | 0.85982691 | 166.16069031 |
| C1 | 0.05028365 | 0.47524048 | 0.87841792 | 418.50562668 |
| C2 | -0.19701388 | 0.60938675 | 0.76800606 | 105.94435120 |
| C3 | -0.24736264 | 0.54439323 | 0.80152837 | 106.98551178 |
| C4 | -0.00509310 | 0.41260106 | 0.91089759 | 393.34686279 |

| | X | Y | Z | X DOT | Y DOT | Z DOT |
|---|---|---|---|---|---|---|
| STATE VECTOR (1950.0) | -584.2010498 | -1582.7489624 | -600.4543228 | 1.7160618 | -0.2473731 | -0.8038038 |

LONG -32.3626 DEG
LATI 10.6389 DEG

* 249.80494 KM *
(1) (2)

LONG -38.8048 DEG
LATI 3.2059 DEG

LOW RESOLUTION

144.98170 KM 50.32977 KM

(4) (3)
* 84.80883 KM *

LONG -39.9869 DEG
LATI 9.2203 DEG

LONG -40.3056 DEG
LATI 3.9194 DEG

LONG -34.5317 DEG
LATI 14.0789 DEG

* 306.18075 KM *
(1) (2)

LONG -38.9811 DEG
LATI 4.5059 DEG

HIGH RESOLUTION

56.04173 KM 9.50962 KM

(4) (3)
* 106.98552 KM *

LONG -35.9985 DEG
LATI 13.7622 DEG

LONG -39.2599 DEG
LATI 4.6509 DEG

LOW RESOLUTION 162

| INDEX | LONGITUDE | LATITUDE |
|---|---|---|
| 1 | 0. | 0. |
| 2 | 0. | 0. |
| 3 | 0. | 0. |
| 4 | 0. | 0. |
| 5 | -34.1270361 | 8.6554811 |
| 6 | -36.2136295 | 6.2536935 |
| 7 | -37.1178665 | 5.1988445 |
| 8 | -37.6784987 | 4.5395297 |
| 9 | -38.0727577 | 4.0740131 |
| 10 | -38.3712540 | 3.7206012 |
| 11 | -38.6087532 | 3.4388363 |
| 12 | -38.8047800 | 3.2059055 |
| 13 | -38.9438252 | 3.2696269 |
| 14 | -39.0790052 | 3.3320403 |
| 15 | -39.2115178 | 3.3936622 |
| 16 | -39.3424559 | 3.4549888 |
| 17 | -39.4728746 | 3.5164998 |
| 18 | -39.6038094 | 3.5786835 |
| 19 | -39.7363014 | 3.6420498 |
| 20 | -39.8714571 | 3.7071474 |
| 21 | -40.0104723 | 3.7745887 |
| 22 | -40.1546812 | 3.8450677 |
| 23 | -40.3056083 | 3.9194024 |
| 24 | -40.2830958 | 4.2549209 |
| 25 | -40.2558365 | 4.6677512 |
| 26 | -40.2215662 | 5.1974469 |
| 27 | -40.1761966 | 5.9184561 |
| 28 | -40.1110706 | 6.9965494 |
| 29 | -40.0013742 | 8.9485986 |
| 30 | 0. | 0. |
| 31 | 0. | 0. |
| 32 | 0. | 0. |
| 33 | 0. | 0. |
| 34 | 0. | 0. |
| 35 | 0. | 0. |
| 36 | 0. | 0. |
| 37 | 0. | 0. |
| 38 | 0. | 0. |
| 39 | 0. | 0. |
| 40 | 0. | 0. |
| 41 | 0. | 0. |
| 42 | 0. | 0. |
| 43 | 0. | 0. |
| 44 | 0. | 0. |

CORNER 1 , 4 OF LOW RESOLUTION FRAME 1 IS OFF THE MOON

HIGH RESOLUTION 162

| INDEX | LONGITUDE | LATITUDE |
|---|---|---|
| 1 | 0. | 0. |
| 2 | 0. | 0. |
| 3 | -36.0340114 | 10.8966736 |
| 4 | -37.0741978 | 8.6580150 |
| 5 | -37.6085577 | 7.4994835 |
| 6 | -37.9669614 | 6.7198963 |
| 7 | -38.2328506 | 6.1404424 |
| 8 | -38.4415846 | 5.6849892 |
| 9 | -38.6116562 | 5.3135737 |
| 10 | -38.7539940 | 5.0025406 |
| 11 | -38.8755817 | 4.7367301 |
| 12 | -38.9811454 | 4.5058595 |
| 13 | -39.0063386 | 4.5188266 |
| 14 | -39.0315490 | 4.5318296 |
| 15 | -39.0567832 | 4.5448726 |
| 16 | -39.0820413 | 4.5579576 |
| 17 | -39.1073332 | 4.5710861 |
| 18 | -39.1326561 | 4.5842606 |
| 19 | -39.1580200 | 4.5974839 |
| 20 | -39.1834249 | 4.6107575 |
| 21 | -39.2088776 | 4.6240832 |
| 22 | -39.2343817 | 4.6374661 |
| 23 | -39.2599435 | 4.6509071 |
| 24 | -39.1730227 | 4.8948311 |
| 25 | -39.0727553 | 5.1762707 |
| 26 | -38.9551396 | 5.5064626 |
| 27 | -38.8142433 | 5.9020953 |
| 28 | -38.6406846 | 6.3894694 |
| 29 | -38.4183927 | 7.0136530 |
| 30 | -38.1159620 | 7.8625090 |
| 31 | -37.6560102 | 9.1518753 |
| 32 | -36.6785455 | 11.8797153 |
| 33 | 0. | 0. |
| 34 | 0. | 0. |
| 35 | 0. | 0. |
| 36 | 0. | 0. |
| 37 | 0. | 0. |
| 38 | 0. | 0. |
| 39 | 0. | 0. |
| 40 | 0. | 0. |
| 41 | 0. | 0. |
| 42 | 0. | 0. |
| 43 | 0. | 0. |
| 44 | 0. | 0. |

CORNER 1 , 4 OF HIGH RESOLUTION FRAME 1 IS OFF THE MOON

**********
* PHOTO FRAME NUMBER 1 OF 8 *
**********

## FRAME 163

| | YEAR | MONTH | DAY | HOUR | MINUTE | SECOND |
|---|---|---|---|---|---|---|
| GMT | 67 | 2 | 21 | 11 | 59 | 21.599 |

| | | | | | |
|---|---|---|---|---|---|
| LONGITUDE OF NADIR POINT | = | -42.6301842 | DEG | | |
| LONG OF CAMERA AXIS INTERSECT | = | -42.4718947 | DEG | | |
| SPACECRAFT RADIUS | = | 1790.2878265 | KM | | |
| MEAN ALTITUDE RATE | = | -0.0603776 | KM/SEC | | |
| HORIZONTAL VELOCITY | = | 1.9104880 | KM/SEC | | |
| SCALE FACTOR (HIGH) | = | 0.0111325 | M/KM | | |
| SCALE FACTOR (LOW) | = | 0.0014600 | M/KM | | |
| IMAGE MOTION COMPENSATION (V/H) | = | 0.0348816 | RAD/SEC | | |
| EMISSION ANGLE | = | 17.9820337 | DEG | | |
| PHASE ANGLE | = | 84.5170021 | DEG | | |
| TILT ANGLE | = | 17.4406466 | DEG | | |
| TILT AZIMUTH | = | 16.9311134 | DEG | | |
| SUN ANGLE AT NADIR | = | 79.5346451 | DEG | | |
| LONGITUDE DISTANCE TO TARGET | = | -0.6301842 | DEG | | |
| LONGITUDE ARC LENGTH TO TARGET | = | -19.1168845 | KM | | |
| FORWARD OVERLAP RATIO | = | 0. | PCT | | |
| TIME BETWEEN PHOTOS | = | 0. | SEC | | |
| LATITUDE OF NADIR POINT | = | 1.2944378 | DEG | | |
| LATI OF CAMERA AXIS INTERSECT | = | 1.8121858 | DEG | | |
| SPACECRAFT ALTITUDE | = | 52.1978302 | KM | | |
| TIME FROM PERIAPSIS | = | -117.6445780 | SEC | | |
| TRUE ANOMALY | = | 352.7877846 | DEG | | |
| TILT DISTANCE (HIGH) | = | 191.6377621 | MM | | |
| TILT DISTANCE (LOW) | = | 25.1328213 | MM | | |
| SWING ANGLE | = | 175.3485069 | DEG | | |
| INCIDENCE ANGLE | = | 79.3922882 | DEG | | |
| NORTH DEVIATION ANGLE | = | 337.5342636 | DEG | | |
| RESOLUTION CONSTANT | = | 1.1890395 | MTR | | |
| SUN AZIMUTH AT PRINCIPAL GND PT | = | 91.7989311 | DEG | | |
| SUN ARC AT NADIR | = | 2412.7147522 | KM | | |
| LATITUDE DISTANCE TO TARGET | = | -0.4555622 | DEG | | |
| LATITUDE ARC LENGTH TO TARGET | = | -13.8196585 | KM | | |
| SIDE OVERLAP RATIO | = | 0. | PCT | | |
| ALPHA | = | -5.6219315 | DEG. | | |

| | X | Y | Z | MAGNITUDE (KM) |
|---|---|---|---|---|
| DIRECTION COSINES TO TARGET | | | | |
| CAMERA AXIS | -0.44930855 | 0.86585454 | 0.22004032 | 57.42371082 |
| C1 | -0.64718410 | 0.71478836 | 0.26501005 | 54.79444885 |
| C2 | -0.53021214 | 0.74657052 | 0.40188003 | 59.12950134 |
| C3 | -0.68761390 | 0.72086833 | 0.08681241 | 52.63661194 |
| C4 | -0.74252333 | 0.65911376 | 0.11928187 | 52.75489807 |
| | -0.58512156 | 0.68481623 | 0.43434950 | 59.27941895 |

| | X | Y | Z | X DOT | Y DOT | Z DOT |
|---|---|---|---|---|---|---|
| STATE VECTOR (1950.0) | -543.7075195 | -1589.6666260 | -618.4437485 | 1.7255800 | -0.2132843 | -0.7940361 |

LONG -41.4860 DEG
LATI 2.3745 DEG

(1) • 47.72184 KM • (2)

LONG -42.2123 DEG
LATI 0.9783 DEG

LOW RESOLUTION

43.66990 KM 33.41642 KM

(4) • 48.73541 KM • (3)

LONG -42.8159 DEG
LATI 2.9286 DEG

LONG -43.2388 DEG
LATI 1.3786 DEG

LONG -42.2592 DEG
LATI 2.1170 DEG

(1) • 20.74324 KM • (2)

LONG -42.5179 DEG
LATI 1.4840 DEG

HIGH RESOLUTION

5.25864 KM 4.68012 KM

(4) • 20.79789 KM • (3)

LONG -42.4198 DEG
LATI 2.1825 DEG

LONG -42.6614 DEG
LATI 1.5408 DEG

LOW RESOLUTION 163

| INDEX | LONGITUDE | LATITUDE |
|---|---|---|
| 1 | -41.4860082 | 2.3739569 |
| 2 | -41.5776076 | 2.1996461 |
| 3 | -41.6597204 | 2.0429710 |
| 4 | -41.7345109 | 1.8999110 |
| 5 | -41.8036289 | 1.7674139 |
| 6 | -41.8683486 | 1.6430874 |
| 7 | -41.9297009 | 1.5250062 |
| 8 | -41.9885325 | 1.4115568 |
| 9 | -42.0455818 | 1.3013568 |
| 10 | -42.1014934 | 1.1931691 |
| 11 | -42.1568623 | 1.0858447 |
| 12 | -42.2122688 | 0.9782700 |
| 13 | -42.3095822 | 1.0163219 |
| 14 | -42.4038591 | 1.0531656 |
| 15 | -42.4959235 | 1.0891257 |
| 16 | -42.5865226 | 1.1244950 |
| 17 | -42.6763668 | 1.1595509 |
| 18 | -42.7661357 | 1.1945591 |
| 19 | -42.8565097 | 1.2297832 |
| 20 | -42.9481845 | 1.2654957 |
| 21 | -43.0418978 | 1.3019826 |
| 22 | -43.1384597 | 1.3395563 |
| 23 | -43.2387676 | 1.3785652 |
| 24 | -43.2058668 | 1.4970562 |
| 25 | -43.1730990 | 1.6154268 |
| 26 | -43.1401196 | 1.7349056 |
| 27 | -43.1065798 | 1.8567724 |
| 28 | -43.0721078 | 1.9824103 |
| 29 | -43.0362902 | 2.1133740 |
| 30 | -42.9986424 | 2.2514788 |
| 31 | -42.9585934 | 2.3989118 |
| 32 | -42.9154367 | 2.5583959 |
| 33 | -42.8682675 | 2.7334220 |
| 34 | -42.8159075 | 2.9286066 |
| 35 | -42.6856251 | 2.8728535 |
| 36 | -42.5603662 | 2.8195387 |
| 37 | -42.4389153 | 2.7681211 |
| 38 | -42.3201928 | 2.7181147 |
| 39 | -42.2032123 | 2.6690919 |
| 40 | -42.0870409 | 2.6206556 |
| 41 | -41.9707775 | 2.5724259 |
| 42 | -41.8535166 | 2.5240289 |
| 43 | -41.7343197 | 2.4750889 |
| 44 | -41.6121855 | 2.4252063 |

HIGH RESOLUTION 163

| INDEX | LONGITUDE | LATITUDE |
|---|---|---|
| 1 | -42.2592058 | 2.1170222 |
| 2 | -42.2858300 | 2.0519245 |
| 3 | -42.3115869 | 1.9889314 |
| 4 | -42.3365750 | 1.9278072 |
| 5 | -42.3608837 | 1.8683402 |
| 6 | -42.3845911 | 1.8103373 |
| 7 | -42.4077697 | 1.7536229 |
| 8 | -42.4304867 | 1.6980311 |
| 9 | -42.4528008 | 1.6434118 |
| 10 | -42.4747772 | 1.5896206 |
| 11 | -42.4964628 | 1.5365262 |
| 12 | -42.5179167 | 1.4839977 |
| 13 | -42.5389486 | 1.4891571 |
| 14 | -42.5439773 | 1.4943156 |
| 15 | -42.5570021 | 1.4994741 |
| 16 | -42.5700307 | 1.5046309 |
| 17 | -42.5830626 | 1.5097919 |
| 18 | -42.5960984 | 1.5149547 |
| 19 | -42.6091371 | 1.5201192 |
| 20 | -42.6221862 | 1.5252879 |
| 21 | -42.6352453 | 1.5304610 |
| 22 | -42.6483150 | 1.5356391 |
| 23 | -42.6614017 | 1.5408223 |
| 24 | -42.6413484 | 1.5940440 |
| 25 | -42.6210799 | 1.6478454 |
| 26 | -42.6005483 | 1.7023546 |
| 27 | -42.5797024 | 1.7577099 |
| 28 | -42.5584846 | 1.8140547 |
| 29 | -42.5368428 | 1.8715435 |
| 30 | -42.5147099 | 1.9303429 |
| 31 | -42.4920163 | 1.9906321 |
| 32 | -42.4686947 | 2.0526076 |
| 33 | -42.4446626 | 2.1164860 |
| 34 | -42.4198284 | 2.1825032 |
| 35 | -42.4051809 | 2.1765200 |
| 36 | -42.3905473 | 2.1705453 |
| 37 | -42.3759270 | 2.1645783 |
| 38 | -42.3613210 | 2.1586181 |
| 39 | -42.3467212 | 2.1526647 |
| 40 | -42.3321319 | 2.1467164 |
| 41 | -42.3175426 | 2.1407716 |
| 42 | -42.3029604 | 2.1348311 |
| 43 | -42.2883778 | 2.1288931 |
| 44 | -42.2737951 | 2.1229568 |

**********
* PHOTO FRAME NUMBER 2 OF 8 *
**********

## FRAME 164

| GMT | YEAR | MONTH | DAY | HOUR | MINUTE | SECOND |
|---|---|---|---|---|---|---|
| | 67 | 2 | 21 | 11 | 59 | 24.109 |

| | | | | | |
|---|---|---|---|---|---|
| LONGITUDE OF NADIR POINT | = | -42.4877548 | DEG | LATITUDE OF NADIR POINT | = | 1.2398202 | DEG |
| LONG OF CAMERA AXIS INTERSECT | = | -42.3256230 | DEG | LATI OF CAMERA AXIS INTERSECT | = | 1.7544075 | DEG |
| SPACECRAFT RADIUS | = | 1790.1384735 | KM | SPACECRAFT ALTITUDE | = | 52.0484772 | KM |
| MEAN ALTITUDE RATE | = | -0.0591059 | KM/SEC | TIME FROM PERIAPSIS | = | -115.1473761 | SEC |
| HORIZONTAL VELOCITY | = | 1.9106476 | KM/SEC | TRUE ANOMALY | = | 352.9404793 | DEG |
| SCALE FACTOR (HIGH) | = | 0.0111651 | M/KM | TILT DISTANCE (HIGH) | = | 191.5225124 | MM |
| SCALE FACTOR (LOW) | = | 0.0014643 | M/KM | TILT DISTANCE (LOW) | = | 25.1177065 | MM |
| IMAGE MOTION COMPENSATION (V/H) | = | 0.0349854 | RAD/SEC | SWING ANGLE | = | 175.8575687 | DEG |
| EMISSION ANGLE | = | 17.9703014 | DEG | INCIDENCE ANGLE | = | 79.2439919 | DEG |
| PHASE ANGLE | = | 84.5170021 | DEG | NORTH DEVIATION ANGLE | = | 337.5353012 | DEG |
| TILT ANGLE | = | 17.4307935 | DEG | RESOLUTION CONSTANT | = | 1.1855661 | MTR |
| TILT AZIMUTH | = | 17.4799125 | DEG | SUN AZIMUTH AT PRINCIPAL GND PT | = | 91.7934666 | DEG |
| SUN ANGLE AT NADIR | = | 79.3903427 | DEG | SUN ARC AT NADIR | = | 2408.3372803 | KM |
| LONGITUDE DISTANCE TO TARGET | = | -0.4877548 | DEG | LATITUDE DISTANCE TO TARGET | = | -0.5101798 | DEG |
| LONGITUDE ARC LENGTH TO TARGET | = | -14.7962344 | KM | LATITUDE ARC LENGTH TO TARGET | = | -15.4765053 | KM |
| FORWARD OVERLAP RATIO | = | 3.5540349 | PCT | SIDE OVERLAP RATIO | = | 0. | PCT |
| TIME BETWEEN PHOTOS | = | 2.5002480 | SEC | ALPHA | = | -5.7735849 | DEG. |

| DIRECTION COSINES TO TARGET | X | Y | Z | MAGNITUDE (KM) |
|---|---|---|---|---|
| CAMERA AXIS | -0.50935195 | 0.82211425 | 0.25433981 | 56.40080357 |
| C1 | -0.64717963 | 0.71479238 | 0.26501013 | 54.63438416 |
| C2 | -0.53020747 | 0.74657379 | 0.40188010 | 58.96478271 |
| C3 | -0.68760941 | 0.72087231 | 0.08681248 | 52.48925781 |
| C4 | -0.74251922 | 0.65911837 | 0.11928195 | 52.59423828 |
| | -0.58511728 | 0.68481985 | 0.43434957 | 59.09783936 |

| STATE VECTOR (1950.0) | X | Y | Z | X DOT | Y DOT | Z DOT |
|---|---|---|---|---|---|---|
| | -539.3921204 | -1590.1955872 | -620.4271851 | 1.7267372 | -0.2098859 | -0.7927136 |

LONG -41.3413 DEG
LATI 2.3157 DEG

LONG -42.0664 DEG
LATI 0.9226 DEG

(1) * 47.63574 KM * (2)

LOW RESOLUTION

43.53526 KM 33.31584 KM

(4) * 48.53524 KM * (3)

LONG -42.6683 DEG
LATI 2.8656 DEG

LONG -43.0897 DEG
LATI 1.3220 DEG

LONG -42.1135 DEG
LATI 2.0584 DEG

LONG -42.3715 DEG
LATI 1.4272 DEG

(1) * 20.68555 KM * (2)

HIGH RESOLUTION

5.24283 KM 4.66614 KM

(4) * 20.73406 KM * (3)

LONG -42.2737 DEG
LATI 2.1235 DEG

LONG -42.5146 DEG
LATI 1.4838 DEG

LOW RESOLUTION 164

| INDEX | LONGITUDE | LATITUDE |
|---|---|---|
| 1 | -41.3412833 | 2.3156928 |
| 2 | -41.4327669 | 2.1416724 |
| 3 | -41.5147700 | 1.9852687 |
| 4 | -41.5894580 | 1.8424640 |
| 5 | -41.6584740 | 1.7102093 |
| 6 | -41.7230978 | 1.5861176 |
| 7 | -41.7843542 | 1.4682610 |
| 8 | -41.8430939 | 1.3550344 |
| 9 | -41.9000473 | 1.2450564 |
| 10 | -41.9558635 | 1.1370899 |
| 11 | -42.0111370 | 1.0299874 |
| 12 | -42.0664411 | 0.9226416 |
| 13 | -42.1636071 | 0.9606669 |
| 14 | -42.2577105 | 0.9974731 |
| 15 | -42.3495693 | 1.0333863 |
| 16 | -42.4399467 | 1.0686966 |
| 17 | -42.5295382 | 1.1036843 |
| 18 | -42.6190238 | 1.1386130 |
| 19 | -42.7090869 | 1.1737466 |
| 20 | -42.8004165 | 1.2093558 |
| 21 | -42.8937511 | 1.2457266 |
| 22 | -42.9898825 | 1.2831671 |
| 23 | -43.0897160 | 1.3220258 |
| 24 | -43.0569243 | 1.4400583 |
| 25 | -43.0242624 | 1.5579670 |
| 26 | -42.9913888 | 1.6769736 |
| 27 | -42.9579616 | 1.7983538 |
| 28 | -42.9236059 | 1.9234828 |
| 29 | -42.8879080 | 2.0539096 |
| 30 | -42.8503861 | 2.1914397 |
| 31 | -42.8104739 | 2.3382495 |
| 32 | -42.7674642 | 2.4970471 |
| 33 | -42.7204556 | 2.6713032 |
| 34 | -42.6682763 | 2.8656109 |
| 35 | -42.5385575 | 2.8104461 |
| 36 | -42.4137836 | 2.7576726 |
| 37 | -42.2927489 | 2.7067510 |
| 38 | -42.1743817 | 2.6572099 |
| 39 | -42.0576982 | 2.6086225 |
| 40 | -41.9417796 | 2.5605960 |
| 41 | -41.8257213 | 2.5127548 |
| 42 | -41.7086177 | 2.4647318 |
| 43 | -41.5895267 | 2.4161469 |
| 44 | -41.4674540 | 2.3666101 |

HIGH RESOLUTION 164

| INDEX | LONGITUDE | LATITUDE |
|---|---|---|
| 1 | -42.1134839 | 2.0584491 |
| 2 | -42.1400361 | 1.9935350 |
| 3 | -42.1657281 | 1.9307194 |
| 4 | -42.1906514 | 1.8697668 |
| 5 | -42.2148986 | 1.8104680 |
| 6 | -42.2385449 | 1.7526282 |
| 7 | -42.2616615 | 1.6960725 |
| 8 | -42.2843170 | 1.6406370 |
| 9 | -42.3065734 | 1.5861705 |
| 10 | -42.3284879 | 1.5325322 |
| 11 | -42.3501229 | 1.4795854 |
| 12 | -42.3715181 | 1.4272073 |
| 13 | -42.3845129 | 1.4323478 |
| 14 | -42.3975072 | 1.4374876 |
| 15 | -42.4104981 | 1.4426273 |
| 16 | -42.4234891 | 1.4477679 |
| 17 | -42.4364834 | 1.4529084 |
| 18 | -42.4494781 | 1.4580515 |
| 19 | -42.4624829 | 1.4631972 |
| 20 | -42.4754910 | 1.4683464 |
| 21 | -42.4885125 | 1.4734989 |
| 22 | -42.5015411 | 1.4786565 |
| 23 | -42.5145869 | 1.4838202 |
| 24 | -42.4945879 | 1.5368779 |
| 25 | -42.4743810 | 1.5905120 |
| 26 | -42.4539075 | 1.6448547 |
| 27 | -42.4331231 | 1.7000392 |
| 28 | -42.4119668 | 1.7562089 |
| 29 | -42.3903866 | 1.8135202 |
| 30 | -42.3683147 | 1.8721377 |
| 31 | -42.3456898 | 1.9322391 |
| 32 | -42.3224363 | 1.9940216 |
| 33 | -42.2984695 | 2.0577003 |
| 34 | -42.2737064 | 2.1235109 |
| 35 | -42.2591000 | 2.1175686 |
| 36 | -42.2445073 | 2.1116323 |
| 37 | -42.2299252 | 2.1057046 |
| 38 | -42.2153563 | 2.0997837 |
| 39 | -42.2007942 | 2.0938687 |
| 40 | -42.1862392 | 2.0879580 |
| 41 | -42.1716876 | 2.0820508 |
| 42 | -42.1571393 | 2.0761487 |
| 43 | -42.1425910 | 2.0702474 |
| 44 | -42.1280389 | 2.0643478 |

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* PHOTO FRAME NUMBER 3 OF 8 *
**********

# FRAME 165

| GMT | YEAR | MONTH | DAY | HOUR | MINUTE | SECOND |
|---|---|---|---|---|---|---|
| | 67 | 2 | 21 | 11 | 59 | 26.499 |

| | | | | | |
|---|---|---|---|---|---|
| LONGITUDE OF NADIR POINT | = | -42.3509445 | DEG | LATITUDE OF NADIR POINT | = | 1.1873490 | DEG |
| LONG OF CAMERA AXIS INTERSECT | = | -42.1851358 | DEG | LATI OF CAMERA AXIS INTERSECT | = | 1.6989446 | DEG |
| SPACECRAFT RADIUS | = | 1789.9980164 | KM | SPACECRAFT ALTITUDE | = | 51.9080200 | KM |
| MEAN ALTITUDE RATE | = | -0.0578840 | KM/SEC | TIME FROM PERIAPSIS | = | -112.7490282 | SEC |
| HORIZONTAL VELOCITY | = | 1.9107978 | KM/SEC | TRUE ANOMALY | = | 353.0871544 | DEG |
| SCALE FACTOR (HIGH) | = | 0.0111959 | M/KM | TILT DISTANCE (HIGH) | = | 191.4259071 | MM |
| SCALE FACTOR (LOW) | = | 0.0014683 | M/KM | TILT DISTANCE (LOW) | = | 25.1050370 | MM |
| IMAGE MOTION COMPENSATION (V/H) | = | 0.0350832 | RAD/SEC | SWING ANGLE | = | 176.3470097 | DEG |
| EMISSION ANGLE | = | 17.9603105 | DEG | INCIDENCE ANGLE | = | 79.1015663 | DEG |
| PHASE ANGLE | = | 84.5170021 | DEG | NORTH DEVIATION ANGLE | = | 337.5365791 | DEG |
| TILT ANGLE | = | 17.4225333 | DEG | RESOLUTION CONSTANT | = | 1.1823066 | MTR |
| TILT AZIMUTH | = | 17.9497912 | DEG | SUN AZIMUTH AT PRINCIPAL GND PT | = | 91.7879486 | DEG |
| SUN ANGLE AT NADIR | = | 79.2517405 | DEG | SUN ARC AT NADIR | = | 2404.1327209 | KM |
| LONGITUDE DISTANCE TO TARGET | = | -0.3509445 | DEG | LATITUDE DISTANCE TO TARGET | = | -0.5626510 | DEG |
| LONGITUDE ARC LENGTH TO TARGET | = | -10.6460400 | KM | LATITUDE ARC LENGTH TO TARGET | = | -17.0682404 | KM |
| FORWARD OVERLAP RATIO | = | 7.1076282 | PCT | SIDE OVERLAP RATIO | = | 0. | PCT |
| TIME BETWEEN PHOTOS | = | 2.3998260 | SEC | ALPHA | = | -5.9191532 | DEG. |

| DIRECTION COSINES TO TARGET | X | Y | Z | MAGNITUDE (KM) |
|---|---|---|---|---|
| CAMERA AXIS | -0.56532767 | 0.77346829 | 0.28662070 | 55.77725363 |
| C1 | -0.64717541 | 0.71479618 | 0.26501022 | 54.48417664 |
| C2 | -0.53020304 | 0.74657688 | 0.40188020 | 58.81036377 |
| C3 | -0.68760516 | 0.72087637 | 0.08681258 | 52.35110474 |
| C4 | -0.74251532 | 0.65912274 | 0.11928204 | 52.44338989 |
| | -0.58511323 | 0.68482327 | 0.43434966 | 58.92732239 |

| | X | Y | Z | X DOT | Y DOT | Z DOT |
|---|---|---|---|---|---|---|
| STATE VECTOR (1950.0) | -535.2448959 | -1590.6956024 | -622.3289566 | 1.7278401 | -0.2066202 | -3.7914393 |

LONG -41.2022 DEG
LATI 2.2598 DEG

(1) • 47.55600 KM • (2)

LONG -41.9264 DEG
LATI 0.8692 DEG

LOW RESOLUTION

43.40954 KM 33.22166 KM

(4) • 48.34661 KM • (3)

LONG -42.5265 DEG
LATI 2.8052 DEG

LONG -42.9466 DEG
LATI 1.2677 DEG

LONG -41.9735 DEG
LATI 2.0022 DEG

(1) • 20.63148 KM • (2)

LONG -42.2309 DEG
LATI 1.3727 DEG

HIGH RESOLUTION

5.22801 KM 4.65304 KM

(4) • 20.67411 KM • (3)

LONG -42.1334 DEG
LATI 2.9869 DEG

LONG -42.3736 DEG
LATI 1.4291 DEG

LOW RESOLUTION 165

| INDEX | LONGITUDE | LATITUDE |
|---|---|---|
| 1 | -41.2022171 | 2.2597954 |
| 2 | -41.2935982 | 2.0860439 |
| 3 | -41.3754992 | 1.9298904 |
| 4 | -41.4500952 | 1.7873213 |
| 5 | -41.5190187 | 1.6552912 |
| 6 | -41.5835500 | 1.5314163 |
| 7 | -41.6447177 | 1.4137697 |
| 8 | -41.7033687 | 1.3007506 |
| 9 | -41.7602367 | 1.1909766 |
| 10 | -41.8159642 | 1.0832159 |
| 11 | -41.8711452 | 0.9763217 |
| 12 | -41.9263606 | 0.8691885 |
| 13 | -42.0233903 | 0.9071917 |
| 14 | -42.1173296 | 0.9439646 |
| 15 | -42.2090039 | 0.9798316 |
| 16 | -42.2991695 | 1.0150890 |
| 17 | -42.3885255 | 1.0500126 |
| 18 | -42.4777517 | 1.0848671 |
| 19 | -42.5675206 | 1.1199162 |
| 20 | -42.6585298 | 1.1554298 |
| 21 | -42.7515020 | 1.1916912 |
| 22 | -42.8472342 | 1.2290071 |
| 23 | -42.9466133 | 1.2677224 |
| 24 | -42.9139242 | 1.3853237 |
| 25 | -42.8813643 | 1.5027970 |
| 26 | -42.8485932 | 1.6213597 |
| 27 | -42.8152723 | 1.7422805 |
| 28 | -42.7810221 | 1.8669306 |
| 29 | -42.7454371 | 1.9968519 |
| 30 | -42.7080350 | 2.1338398 |
| 31 | -42.6682525 | 2.2800631 |
| 32 | -42.6253791 | 2.4382127 |
| 33 | -42.5785241 | 2.6117448 |
| 34 | -42.5265193 | 2.8052235 |
| 35 | -42.3973293 | 2.7506187 |
| 36 | -42.2730098 | 2.6983575 |
| 37 | -42.1523647 | 2.6479081 |
| 38 | -42.0343289 | 2.5988058 |
| 39 | -41.9179287 | 2.5506299 |
| 40 | -41.8022423 | 2.5029936 |
| 41 | -41.6863685 | 2.4555230 |
| 42 | -41.5694079 | 2.4078525 |
| 43 | -41.4504161 | 2.3596075 |
| 44 | -41.3283911 | 2.3103960 |

HIGH RESOLUTION 165

| INDEX | LONGITUDE | LATITUDE |
|---|---|---|
| 1 | -41.9735131 | 2.0022426 |
| 2 | -42.0000005 | 1.9375001 |
| 3 | -42.0256305 | 1.8748493 |
| 4 | -42.0504928 | 1.8140589 |
| 5 | -42.0746784 | 1.7549155 |
| 6 | -42.0982661 | 1.6972294 |
| 7 | -42.1213250 | 1.6408223 |
| 8 | -42.1439261 | 1.5855345 |
| 9 | -42.1661277 | 1.5312123 |
| 10 | -42.1879911 | 1.4777157 |
| 11 | -42.2095642 | 1.4249098 |
| 12 | -42.2309122 | 1.3726699 |
| 13 | -42.2438722 | 1.3777934 |
| 14 | -42.2568326 | 1.3829161 |
| 15 | -42.2697892 | 1.3880378 |
| 16 | -42.2827497 | 1.3931605 |
| 17 | -42.2957067 | 1.3982831 |
| 18 | -42.3086667 | 1.4034083 |
| 19 | -42.3216338 | 1.4085352 |
| 20 | -42.3346081 | 1.4136656 |
| 21 | -42.3475885 | 1.4188002 |
| 22 | -42.3605833 | 1.4239390 |
| 23 | -42.3735876 | 1.4290830 |
| 24 | -42.3536472 | 1.4819871 |
| 25 | -42.3334947 | 1.5354658 |
| 26 | -42.3130794 | 1.5896505 |
| 27 | -42.2923460 | 1.6446745 |
| 28 | -42.2712479 | 1.7006812 |
| 29 | -42.2497258 | 1.7578251 |
| 30 | -42.2277155 | 1.8162711 |
| 31 | -42.2051520 | 1.8761966 |
| 32 | -42.1819601 | 1.9377964 |
| 33 | -42.1580610 | 2.0012881 |
| 34 | -42.1333632 | 2.0669057 |
| 35 | -42.1187944 | 2.0610001 |
| 36 | -42.1042356 | 2.0551023 |
| 37 | -42.0896912 | 2.0492121 |
| 38 | -42.0751562 | 2.0433270 |
| 39 | -42.0606318 | 2.0374488 |
| 40 | -42.0461078 | 2.0315740 |
| 41 | -42.0315900 | 2.0257043 |
| 42 | -42.0170722 | 2.0198363 |
| 43 | -42.0025582 | 2.0139709 |
| 44 | -41.9880371 | 2.0081063 |

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* PHOTO FRAME NUMBER 4 OF 8 *
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## FRAME 166

| | YEAR | MONTH | DAY | HOUR | MINUTE | SECOND |
|---|---|---|---|---|---|---|
| GMT | 67 | 2 | 21 | 11 | 59 | 28.999 |

| | | | | | |
|---|---|---|---|---|---|
| LONGITUDE OF NADIR POINT | = | -42.2084770 | DEG | LATITUDE OF NADIR POINT | = 1.1326981 DEG |
| LONG OF CAMERA AXIS INTERSECT | = | -42.0388470 | DEG | LATI OF CAMERA AXIS INTERSECT | = 1.6412219 DEG |
| SPACECRAFT RADIUS | = | 1789.8549042 | KM | SPACECRAFT ALTITUDE | = 51.7649076 KM |
| MEAN ALTITUDE RATE | = | -0.0566111 | KM/SEC | TIME FROM PERIAPSIS | = -110.2518463 SEC |
| HORIZONTAL VELOCITY | = | 1.9109510 | KM/SEC | TRUE ANOMALY | = 353.2399025 DEG |
| SCALE FACTOR (HIGH) | = | 0.0112274 | M/KM | TILT DISTANCE (HIGH) | = 191.3402061 MM |
| SCALE FACTOR (LOW) | = | 0.0014724 | M/KM | TILT DISTANCE (LOW) | = 25.0937977 MM |
| IMAGE MOTION COMPENSATION (V/H) | = | 0.0351831 | RAD/SEC | SWING ANGLE | = 176.8571815 DEG |
| EMISSION ANGLE | = | 17.9512582 | DEG | INCIDENCE ANGLE | = 78.9532681 DEG |
| PHASE ANGLE | = | 84.5170021 | DEG | NORTH DEVIATION ANGLE | = 337.5302156 DEG |
| TILT ANGLE | = | 17.4152050 | DEG | RESOLUTION CONSTANT | = 1.1789935 MTR |
| TILT AZIMUTH | = | 18.4394226 | DEG | SUN AZIMUTH AT PRINCIPAL GND PT | = 91.7819214 DEG |
| SUN ANGLE AT NADIR | = | 79.1074134 | DEG | SUN ARC AT NADIR | = 2399.7544250 KM |
| LONGITUDE DISTANCE TO TARGET | = | -0.2084770 | DEG | LATITUDE DISTANCE TO TARGET | = -0.6173019 DEG |
| LONGITUDE ARC LENGTH TO TARGET | = | -6.3242324 | KM | LATITUDE ARC LENGTH TO TARGET | = -18.7260971 KM |
| FORWARD OVERLAP RATIO | = | 2.9978463 | PCT | SIDE OVERLAP RATIO | = 0. PCT |
| TIME BETWEEN PHOTOS | = | 2.4999261 | SEC | ALPHA | = -6.0706360 DEG. |

| | X | Y | Z | MAGNITUDE (KM) |
|---|---|---|---|---|
| DIRECTION COSINES TO TARGET | -0.62048231 | 0.71650749 | 0.31877691 | 55.51455688 |
| CAMERA AXIS | -0.64717107 | 0.71480006 | 0.26501033 | 54.33149719 |
| C1 | -0.53319852 | 0.74658005 | 0.40188030 | 58.65354919 |
| C2 | -0.68760080 | 0.72088051 | 0.08681268 | 52.21076965 |
| C3 | -0.74251132 | 0.65912722 | 0.11928214 | 52.28991699 |
| C4 | -0.58510906 | 0.68482676 | 0.43434975 | 58.75384521 |

| | X | Y | Z | X DOT | Y DOT | Z DOT |
|---|---|---|---|---|---|---|
| STATE VECTOR (1950.0) | -530.9238663 | -1591.2079010 | -624.3058929 | 1.7289797 | -0.2032180 | -0.7901078 |

LONG -41.0573 DEG
LATI 2.2017 DEG

(1) • 47.47604 KM • (2)

LONG -41.7805 DEG
LATI 0.8135 DEG

LOW RESOLUTION

43.28231 KM 33.12620 KM

(4) • 48.15405 KM • (3)

LONG -42.3789 DEG
LATI 2.7425 DEG

LONG -42.7977 DEG
LATI 1.2112 DEG

LONG -41.9277 DEG
LATI 1.9438 DEG

(1) • 20.57657 KM • (2)

LONG -42.0845 DEG
LATI 1.3159 DEG

HIGH RESOLUTION

5.21301 KM 4.63975 KM

(4) • 20.61312 KM • (3)

LONG -41.9872 DEG
LATI 2.0080 DEG

LONG -42.2268 DEG
LATI 1.3721 DEG

LOW RESOLUTION 166

| INDEX | LONGITUDE | LATITUDE |
|---|---|---|
| 1 | -41.0573454 | 2.2016560 |
| 2 | -41.1486206 | 2.0281734 |
| 3 | -41.2304258 | 1.8722692 |
| 4 | -41.3049226 | 1.7299375 |
| 5 | -41.3737540 | 1.5981328 |
| 6 | -41.4381967 | 1.4744747 |
| 7 | -41.4992790 | 1.3570390 |
| 8 | -41.5578446 | 1.2442274 |
| 9 | -41.6146207 | 1.1346600 |
| 10 | -41.6702595 | 1.0271067 |
| 11 | -41.7253551 | 0.9204235 |
| 12 | -41.7804747 | 0.8135045 |
| 13 | -41.8373713 | 0.8514838 |
| 14 | -41.9711461 | 0.8882243 |
| 15 | -42.0626369 | 0.9240477 |
| 16 | -42.1525869 | 0.9592522 |
| 17 | -42.2417073 | 0.9941110 |
| 18 | -42.3306637 | 1.0288920 |
| 19 | -42.4201388 | 1.0638557 |
| 20 | -42.5108166 | 1.0992703 |
| 21 | -42.6034203 | 1.1354190 |
| 22 | -42.6987457 | 1.1726086 |
| 23 | -42.7976675 | 1.2111786 |
| 24 | -42.7650805 | 1.3283403 |
| 25 | -42.7326236 | 1.4453679 |
| 26 | -42.6999583 | 1.5634772 |
| 27 | -42.6667428 | 1.6839310 |
| 28 | -42.6326056 | 1.8080911 |
| 29 | -42.5971332 | 1.9374958 |
| 30 | -42.5598540 | 2.0739314 |
| 31 | -42.5202012 | 2.2195536 |
| 32 | -42.4774714 | 2.3770441 |
| 33 | -42.4307737 | 2.5498351 |
| 34 | -42.3789425 | 2.7424703 |
| 35 | -42.2502961 | 2.6884384 |
| 36 | -42.1264372 | 2.6367023 |
| 37 | -42.0061884 | 2.5867395 |
| 38 | -41.8884937 | 2.5380889 |
| 39 | -41.7723708 | 2.4903381 |
| 40 | -41.6569166 | 2.4431006 |
| 41 | -41.5412302 | 2.3960098 |
| 42 | -41.4244099 | 2.3487022 |
| 43 | -41.3055100 | 2.3008055 |
| 44 | -41.1835265 | 2.2519313 |

HIGH RESOLUTION 166

| INDEX | LONGITUDE | LATITUDE |
|---|---|---|
| 1 | -41.8277497 | 1.9437659 |
| 2 | -41.8541689 | 1.8791976 |
| 3 | -41.8797345 | 1.8167159 |
| 4 | -41.9045348 | 1.7560886 |
| 5 | -41.9286623 | 1.6971048 |
| 6 | -41.9521890 | 1.6395741 |
| 7 | -41.9751930 | 1.5833189 |
| 8 | -41.9977360 | 1.5281788 |
| 9 | -42.0198832 | 1.4740026 |
| 10 | -42.0416884 | 1.4206494 |
| 11 | -42.0632105 | 1.3679870 |
| 12 | -42.0844998 | 1.3158871 |
| 13 | -42.0974298 | 1.3209944 |
| 14 | -42.1103559 | 1.3260983 |
| 15 | -42.1232820 | 1.3312038 |
| 16 | -42.1362047 | 1.3363077 |
| 17 | -42.1491275 | 1.3414133 |
| 18 | -42.1620536 | 1.3465188 |
| 19 | -42.1749830 | 1.3516278 |
| 20 | -42.1879191 | 1.3567394 |
| 21 | -42.2008624 | 1.3618543 |
| 22 | -42.2138162 | 1.3669735 |
| 23 | -42.2267833 | 1.3720979 |
| 24 | -42.2069006 | 1.4248449 |
| 25 | -42.1867990 | 1.4781673 |
| 26 | -42.1664419 | 1.5321907 |
| 27 | -42.1457667 | 1.5870499 |
| 28 | -42.1247263 | 1.6428918 |
| 29 | -42.1032658 | 1.6998659 |
| 30 | -42.0813174 | 1.7581359 |
| 31 | -42.0588150 | 1.8178830 |
| 32 | -42.0356846 | 1.8793C01 |
| 33 | -42.0118508 | 1.9425997 |
| 34 | -41.9872246 | 2.0080201 |
| 35 | -41.9726896 | 2.0021529 |
| 36 | -41.9581723 | 1.9962944 |
| 37 | -41.9436650 | 1.9904417 |
| 38 | -41.9291644 | 1.9845951 |
| 39 | -41.9146743 | 1.9787536 |
| 40 | -41.9001842 | 1.9729163 |
| 41 | -41.8857037 | 1.9670825 |
| 42 | -41.8712173 | 1.9612521 |
| 43 | -41.8567305 | 1.9554225 |
| 44 | -41.8422399 | 1.9495946 |

**********  **********
* PHOTO FRAME NUMBER 5 OF 8 *
**********  **********

## FRAME 167

| | YEAR | MONTH | DAY | HOUR | MINUTE | SECOND |
|---|---|---|---|---|---|---|
| GMT | 67 | 2 | 21 | 11 | 59 | 31.399 |

| | | | | | |
|---|---|---|---|---|---|
| LONGITUDE OF NADIR POINT | = | -42.0716896 | DEG | LATITUDE OF NADIR POINT | = 1.0802191 DEG |
| LONG OF CAMERA AXIS INTERSECT | = | -41.8984118 | DEG | LATI OF CAMERA AXIS INTERSECT | = 1.5858341 DEG |
| SPACECRAFT RADIUS | = | 1789.7204895 | KM | SPACECRAFT ALTITUDE | = 51.6304932 KM |
| MEAN ALTITUDE RATE | = | -0.0553886 | KM/SEC | TIME FROM PERIAPSIS | = -107.8545332 SEC |
| HORIZONTAL VELOCITY | = | 1.9110947 | KM/SEC | TRUE ANOMALY | = 353.3865547 DEG |
| SCALE FACTOR (HIGH) | = | 0.0112570 | M/KM | TILT DISTANCE (HIGH) | = 191.2721958 MM |
| SCALE FACTOR (LOW) | = | 0.0014763 | M/KM | TILT DISTANCE (LOW) | = 25.0848780 MM |
| IMAGE MOTION COMPENSATION (V/H) | = | 0.0352770 | RAD/SEC | SWING ANGLE | = 177.3472939 DEG |
| EMISSION ANGLE | = | 17.9438579 | DEG | INCIDENCE ANGLE | = 78.8108969 DEG |
| PHASE ANGLE | = | 84.5170021 | DEG | NORTH DEVIATION ANGLE | = 337.5400696 DEG |
| TILT ANGLE | = | 17.4093890 | DEG | RESOLUTION CONSTANT | = 1.1758886 MTR |
| TILT AZIMUTH | = | 18.9097779 | DEG | SUN AZIMUTH AT PRINCIPAL GND PT | = 91.7758636 DEG |
| SUN ANGLE AT NADIR | = | 78.9688377 | DEG | SUN ARC AT NADIR | = 2395.5507507 KM |
| LONGITUDE DISTANCE TO TARGET | = | -0.0716896 | DEG | LATITUDE DISTANCE TO TARGET | = -0.6697809 DEG |
| LONGITUDE ARC LENGTH TO TARGET | = | -2.1747324 | KM | LATITUDE ARC LENGTH TO TARGET | = -20.3180654 KM |
| FORWARD OVERLAP RATIO | = | 6.6258353 | PCT | SIDE OVERLAP RATIO | = 0. PCT |
| TIME BETWEEN PHOTOS | = | 2.4001479 | SEC | ALPHA | = -6.2159844 DEG. |

| | X | Y | Z | MAGNITUDE (KM) |
|---|---|---|---|---|
| DIRECTION COSINES TO TARGET | -0.66924631 | 0.65673702 | 0.34757137 | 55.63860512 |
| CAMERA AXIS | -0.64716685 | 0.71480386 | 0.26501041 | 54.18841553 |
| C1 | -0.53019410 | 0.74658313 | 0.40188038 | 58.50675964 |
| C2 | -0.68759654 | 0.72088456 | 0.08681277 | 52.67939148 |
| C3 | -0.74250744 | 0.65913159 | 0.11928223 | 52.14598083 |
| C4 | -0.58510499 | 0.68483017 | 0.43434983 | 58.59118652 |

| | X | Y | Z | X DOT | Y DOT | Z DOT |
|---|---|---|---|---|---|---|
| STATE VECTOR (1950.0) | -526.7730255 | -1591.6916962 | -626.2006073 | 1.7300653 | -0.1999501 | -0.7888253 |

LONG -43.9182 DEG
LATI 2.1459 DEG

LONG -41.6404 DEG
LATI 0.7600 DEG

(1) * 47.40223 KM * (2)

LOW RESOLUTION

43.16372 KM 33.03701 KM

(4) * 47.97277 KM * (3)

LONG -42.2373 DEG
LATI 2.6823 DEG

LONG -42.6547 DEG
LATI 1.1569 DEG

LONG -41.6878 DEG
LATI 1.8877 DEG

LONG -41.9439 DEG
LATI 1.2614 DEG

(1) * 20.52516 KM * (2)

HIGH RESOLUTION

5.19899 KM 4.62735 KM

(4) * 20.55594 KM * (3)

LONG -41.8469 DEG
LATI 1.9515 DEG

LONG -42.0859 DEG
LATI 1.3174 DEG

LOW RESOLUTION 167

| INDEX | LONGITUDE | LATITUDE |
|---|---|---|
| 1 | -40.9182010 | 2.1459028 |
| 2 | -41.0093837 | 1.9726662 |
| 3 | -41.0910969 | 1.8169925 |
| 4 | -41.1655083 | 1.6748776 |
| 5 | -41.2342577 | 1.5432812 |
| 6 | -41.2986183 | 1.4198238 |
| 7 | -41.3596191 | 1.3025853 |
| 8 | -41.4181023 | 1.1899658 |
| 9 | -41.4747996 | 1.0805905 |
| 10 | -41.5303564 | 0.9732285 |
| 11 | -41.5853667 | 0.8667390 |
| 12 | -41.6404014 | 0.7600199 |
| 13 | -41.7371745 | 0.7979812 |
| 14 | -41.8308063 | 0.8346918 |
| 15 | -41.9221191 | 0.8704760 |
| 16 | -42.0118747 | 0.9056301 |
| 17 | -42.1007695 | 0.9404209 |
| 18 | -42.1894765 | 0.9751410 |
| 19 | -42.2786756 | 1.0100235 |
| 20 | -42.3690424 | 1.0453468 |
| 21 | -42.4613047 | 1.0813914 |
| 22 | -42.5562406 | 1.1184614 |
| 23 | -42.6547284 | 1.1568966 |
| 24 | -42.6222410 | 1.2736633 |
| 25 | -42.5898829 | 1.3902525 |
| 26 | -42.5573201 | 1.5079350 |
| 27 | -42.5242038 | 1.6279465 |
| 28 | -42.4901690 | 1.7516481 |
| 29 | -42.4548092 | 1.8805653 |
| 30 | -42.4176426 | 2.0164818 |
| 31 | -42.3781128 | 2.1615397 |
| 32 | -42.3355165 | 2.3184078 |
| 33 | -42.2889686 | 2.4905012 |
| 34 | -42.2373052 | 2.6823407 |
| 35 | -42.1091638 | 2.6288527 |
| 36 | -41.9857426 | 2.5776114 |
| 37 | -41.8658624 | 2.5281108 |
| 38 | -41.7484751 | 2.4798888 |
| 39 | -41.6326218 | 2.4325119 |
| 40 | -41.5173826 | 2.3856826 |
| 41 | -41.4018669 | 2.3389511 |
| 42 | -41.2851701 | 2.2919835 |
| 43 | -41.1663518 | 2.2444230 |
| 44 | -41.0444059 | 2.1958509 |

HIGH RESOLUTION 167

| INDEX | LONGITUDE | LATITUDE |
|---|---|---|
| 1 | -41.6877995 | 1.8876747 |
| 2 | -41.7141604 | 1.8232686 |
| 3 | -41.7396641 | 1.7609448 |
| 4 | -41.7644100 | 1.7004695 |
| 5 | -41.7884765 | 1.6416359 |
| 6 | -41.8119516 | 1.5842495 |
| 7 | -41.8348975 | 1.5281370 |
| 8 | -41.8573895 | 1.4731360 |
| 9 | -41.8794818 | 1.4190973 |
| 10 | -41.9012361 | 1.3658799 |
| 11 | -41.9227099 | 1.3133497 |
| 12 | -41.9439449 | 1.2613814 |
| 13 | -41.9568472 | 1.2664733 |
| 14 | -41.9697428 | 1.2715601 |
| 15 | -41.9826345 | 1.2766486 |
| 16 | -41.9955230 | 1.2817362 |
| 17 | -42.0084152 | 1.2868238 |
| 18 | -42.0213070 | 1.2919123 |
| 19 | -42.0342026 | 1.2970034 |
| 20 | -42.0471048 | 1.3020978 |
| 21 | -42.0600138 | 1.3071949 |
| 22 | -42.0729332 | 1.3122953 |
| 23 | -42.0858626 | 1.3174017 |
| 24 | -42.0660315 | 1.3700019 |
| 25 | -42.0459847 | 1.4231749 |
| 26 | -42.0256786 | 1.4770480 |
| 27 | -42.0050583 | 1.5317553 |
| 28 | -41.9840760 | 1.5874401 |
| 29 | -41.9626665 | 1.6442553 |
| 30 | -41.9407759 | 1.7023623 |
| 31 | -41.9183316 | 1.7619412 |
| 32 | -41.8952627 | 1.8231849 |
| 33 | -41.8714938 | 1.8863061 |
| 34 | -41.8469291 | 1.9515413 |
| 35 | -41.8324318 | 1.9457108 |
| 36 | -41.8179450 | 1.9398881 |
| 37 | -41.8034720 | 1.9340722 |
| 38 | -41.7890058 | 1.9282614 |
| 39 | -41.7745461 | 1.9224549 |
| 40 | -41.7600899 | 1.9166535 |
| 41 | -41.7456374 | 1.9108567 |
| 42 | -41.7311811 | 1.9050575 |
| 43 | -41.7167249 | 1.8992630 |
| 44 | -41.7022657 | 1.8934703 |

**********  **********
* PHOTO FRAME NUMBER 6 OF 8 *
**********  **********

## FRAME 168

| | YEAR | MONTH | DAY | HOUR | MINUTE | SECOND |
|---|---|---|---|---|---|---|
| GMT | 67 | 2 | 21 | 11 | 59 | 33.799 |

| | | | | | |
|---|---|---|---|---|---|
| LONGITUDE OF NADIR POINT | = | -41.9348907 | DEG | LATITUDE OF NADIR POINT | = 1.0277257 DEG |
| LONG OF CAMERA AXIS INTERSECT | = | -41.7579694 | DEG | LATI OF CAMERA AXIS INTERSECT | = 1.5304738 DEG |
| SPACECRAFT RADIUS | = | 1789.5890198 | KM | SPACECRAFT ALTITUDE | = 51.4990234 KM |
| MEAN ALTITUDE RATE | = | -0.0541655 | KM/SEC | TIME FROM PERIAPSIS | = -105.4572382 SEC |
| HORIZONTAL VELOCITY | = | 1.9112354 | KM/SEC | TRUE ANOMALY | = 353.5332336 DEG |
| SCALE FACTOR (HIGH) | = | 0.0112861 | M/KM | TILT DISTANCE (HIGH) | = 191.2182350 MM |
| SCALE FACTOR (LOW) | = | 0.0014801 | M/KM | TILT DISTANCE (LOW) | = 25.0778012 MM |
| IMAGE MOTION COMPENSATION (V/H) | = | 0.0353690 | RAD/SEC | SWING ANGLE | = 177.8378162 DEG |
| EMISSION ANGLE | = | 17.9377267 | DEG | INCIDENCE ANGLE | = 78.6685247 DEG |
| PHASE ANGLE | = | 84.5170021 | DEG | NORTH DEVIATION ANGLE | = 337.5422020 DEG |
| TILT ANGLE | = | 17.4047742 | DEG | RESOLUTION CONSTANT | = 1.1728596 MIR |
| TILT AZIMUTH | = | 19.3803639 | DEG | SUN AZIMUTH AT PRINCIPAL GND PT | = 91.7695408 DEG |
| SUN ANGLE AT NADIR | = | 78.8302536 | DEG | SUN ARC AT NADIR | = 2391.3467712 KM |
| LONGITUDE DISTANCE TO TARGET | = | 0.0651093 | DEG | LATITUDE DISTANCE TO TARGET | = -0.7222743 DEG |
| LONGITUDE ARC LENGTH TO TARGET | = | 1.9751148 | KM | LATITUDE ARC LENGTH TO TARGET | = -21.9104736 KM |
| FORWARD OVERLAP RATIO | = | 6.3804263 | PCT | SIDE OVERLAP RATIO | = 0. PCT |
| TIME BETWEEN PHOTOS | = | 2.3998260 | SEC | ALPHA | = -6.3612532 DEG. |

| | X | Y | Z | MAGNITUDE (KM) |
|---|---|---|---|---|
| DIRECTION COSINES TO TARGET | | | | |
| CAMERA AXIS | -0.71299420 | 0.59323137 | 0.37378579 | 56.12887430 |
| C1 | -0.64716261 | 0.71480765 | 0.26501050 | 54.04882812 |
| C2 | -0.53018967 | 0.74658624 | 0.40188047 | 58.36370850 |
| C3 | -0.68759228 | 0.72088861 | 0.08681286 | 51.95130920 |
| C4 | -0.74250355 | 0.65913597 | 0.11928232 | 52.00544739 |
| | -0.58510094 | 0.68483359 | 0.43434992 | 58.43231201 |

| | X | Y | Z | X DOT | Y DOT | Z DOT |
|---|---|---|---|---|---|---|
| STATE VECTOR (1950.0) | -522.6195831 | -1592.1676483 | -628.0922394 | 1.7311427 | -0.1966805 | -0.7875387 |

LONG -40.7790 DEG
LATI 2.0902 DEG

(1) * 47.33134 KM * (2)

LONG -41.5003 DEG
LATI 0.7065 DEG

LOW RESOLUTION

43.04858 KM 32.95021 KM

(4) * 47.79502 KM * (3)

LONG -42.0957 DEG
LATI 2.6223 DEG

LONG -42.5118 DEG
LATI 1.1026 DEG

LONG -41.5478 DEG
LATI 1.8316 DEG

(1) * 20.47508 KM * (2)

LONG -41.8034 DEG
LATI 1.2069 DEG

HIGH RESOLUTION

5.18536 KM 4.61525 KM

(4) * 20.50009 KM * (3)

LONG -41.7066 DEG
LATI 1.8951 DEG

LONG -41.9449 DEG
LATI 1.2627 DEG

LOW RESOLUTION 168

| INDEX | LONGITUDE | LATITUDE |
|---|---|---|
| 1 | -40.7789879 | 2.0902086 |
| 2 | -40.8730824 | 1.9172084 |
| 3 | -40.9517131 | 1.7617559 |
| 4 | -41.0260429 | 1.6198502 |
| 5 | -41.0947099 | 1.4884544 |
| 6 | -41.1589923 | 1.3651891 |
| 7 | -41.2199144 | 1.2481385 |
| 8 | -41.2783227 | 1.1357042 |
| 9 | -41.3349414 | 1.0265125 |
| 10 | -41.3904195 | 0.9193375 |
| 11 | -41.4453516 | 0.8130358 |
| 12 | -41.5003004 | 0.7065088 |
| 13 | -41.5969610 | 0.7444547 |
| 14 | -41.6904492 | 0.7811380 |
| 15 | -41.7815981 | 0.8168838 |
| 16 | -41.8711591 | 0.8519901 |
| 17 | -41.9598355 | 0.8867327 |
| 18 | -42.0483036 | 0.9213754 |
| 19 | -42.1372290 | 0.9561812 |
| 20 | -42.2272954 | 0.9914147 |
| 21 | -42.3192196 | 1.0273578 |
| 22 | -42.4137836 | 1.0643099 |
| 23 | -42.5118446 | 1.1026102 |
| 24 | -42.4794559 | 1.2189523 |
| 25 | -42.4471898 | 1.3351517 |
| 26 | -42.4147224 | 1.4524158 |
| 27 | -42.3817091 | 1.5719962 |
| 28 | -42.3477764 | 1.6952461 |
| 29 | -42.3125191 | 1.8236869 |
| 30 | -42.2754688 | 1.9590920 |
| 31 | -42.2360587 | 2.1035966 |
| 32 | -42.1935954 | 2.2598543 |
| 33 | -42.1471910 | 2.4312664 |
| 34 | -42.0956912 | 2.6223247 |
| 35 | -41.9680486 | 2.5693728 |
| 36 | -41.8450508 | 2.5186254 |
| 37 | -41.7255325 | 2.4695752 |
| 38 | -41.6084528 | 2.4217767 |
| 39 | -41.4928522 | 2.3748251 |
| 40 | -41.3778214 | 2.3283440 |
| 41 | -41.2624698 | 2.2819704 |
| 42 | -41.1458888 | 2.2353493 |
| 43 | -41.0271459 | 2.1881108 |
| 44 | -40.9052200 | 2.1398717 |

HIGH RESOLUTION 168

| INDEX | LONGITUDE | LATITUDE |
|---|---|---|
| 1 | -41.5478349 | 1.8316287 |
| 2 | -41.5741348 | 1.7673814 |
| 3 | -41.5995808 | 1.7052122 |
| 4 | -41.6242681 | 1.6448863 |
| 5 | -41.6482830 | 1.5861961 |
| 6 | -41.6717005 | 1.5289515 |
| 7 | -41.6945953 | 1.4729772 |
| 8 | -41.7170324 | 1.4181129 |
| 9 | -41.7390771 | 1.3642073 |
| 10 | -41.7607799 | 1.3111205 |
| 11 | -41.7822027 | 1.2587210 |
| 12 | -41.8033900 | 1.2068816 |
| 13 | -41.8162613 | 1.2119564 |
| 14 | -41.8291259 | 1.2170287 |
| 15 | -41.8419871 | 1.2220993 |
| 16 | -41.8548450 | 1.2271707 |
| 17 | -41.8677063 | 1.2322412 |
| 18 | -41.8805642 | 1.2373144 |
| 19 | -41.8934288 | 1.2423875 |
| 20 | -41.9062972 | 1.2474640 |
| 21 | -41.9191718 | 1.2525431 |
| 22 | -41.9320536 | 1.2576256 |
| 23 | -41.9449492 | 1.2627141 |
| 24 | -41.9251690 | 1.3151717 |
| 25 | -41.9051733 | 1.3681987 |
| 26 | -41.8849187 | 1.4219250 |
| 27 | -41.8643527 | 1.4764837 |
| 28 | -41.8434219 | 1.5320157 |
| 29 | -41.8220673 | 1.5886746 |
| 30 | -41.8002310 | 1.6466228 |
| 31 | -41.7778482 | 1.7060378 |
| 32 | -41.7548375 | 1.7671133 |
| 33 | -41.7311268 | 1.8300604 |
| 34 | -41.7066231 | 1.8951136 |
| 35 | -41.6921639 | 1.8893199 |
| 36 | -41.6777110 | 1.8835331 |
| 37 | -41.6632686 | 1.8777522 |
| 38 | -41.6488366 | 1.8719772 |
| 39 | -41.6344075 | 1.8662057 |
| 40 | -41.6199822 | 1.8604385 |
| 41 | -41.6055570 | 1.8546738 |
| 42 | -41.5911317 | 1.8489117 |
| 43 | -41.5767064 | 1.8431504 |
| 44 | -41.5622706 | 1.8373892 |

**********
* PHOTO FRAME NUMBER 8 OF 8 *
**********

## FRAME 170

| | YEAR | MONTH | DAY | HOUR | MINUTE | SECOND |
|---|---|---|---|---|---|---|
| GMT | 67 | 2 | 21 | 11 | 59 | 38.699 |

| | | | | | |
|---|---|---|---|---|---|
| LONGITUDE OF NADIR POINT | = | -41.6555977 | DEG | LATITUDE OF NADIR POINT | = 0.9205319 DEG |
| LONG OF CAMERA AXIS INTERSECT | = | -41.4712753 | DEG | LATI OF CAMERA AXIS INTERSECT | = 1.4175485 DEG |
| SPACECRAFT RADIUS | = | 1789.3297882 | KM | SPACECRAFT ALTITUDE | = 51.2397919 KM |
| MEAN ALTITUDE RATE | = | -0.0516672 | KM/SEC | TIME FROM PERIAPSIS | = -100.5637646 SEC |
| HORIZONTAL VELOCITY | = | 1.9115130 | KM/SEC | TRUE ANOMALY | = 353.8327065 DEG |
| SCALE FACTOR (HIGH) | = | 0.0113436 | M/KM | TILT DISTANCE (HIGH) | = 191.1514931 MM |
| SCALE FACTOR (LOW) | = | 0.0014877 | M/KM | TILT DISTANCE (LOW) | = 25.0690482 MM |
| IMAGE MOTION COMPENSATION (V/H) | = | 0.0355506 | RAD/SEC | SWING ANGLE | = 178.8399487 DEG |
| EMISSION ANGLE | = | 17.9291477 | DEG | INCIDENCE ANGLE | = 78.3779020 DEG |
| PHASE ANGLE | = | 84.5170021 | DEG | NORTH DEVIATION ANGLE | = 337.5474281 DEG |
| TILT ANGLE | = | 17.3990660 | DEG | RESOLUTION CONSTANT | = 1.1669094 MTR |
| TILT AZIMUTH | = | 20.3413689 | DEG | SUN AZIMUTH AT PRINCIPAL GND PT | = 91.7558107 DEG |
| SUN ANGLE AT NADIR | = | 78.5473337 | DEG | SUN ARC AT NADIR | = 2382.7642822 KM |
| LONGITUDE DISTANCE TO TARGET | = | 0.3444023 | DEG | LATITUDE DISTANCE TO TARGET | = -0.8294681 DEG |
| LONGITUDE ARC LENGTH TO TARGET | = | 10.4475796 | KM | LATITUDE ARC LENGTH TO TARGET | = -25.1622412 KM |
| FORWARD OVERLAP RATIO | = | 1.9702393 | PCT | SIDE OVERLAP RATIO | = 0. PCT |
| TIME BETWEEN PHOTOS | = | 2.4999261 | SEC | ALPHA | = -6.6575435 DEG. |

| | X | Y | Z | MAGNITUDE (KM) |
|---|---|---|---|---|
| DIRECTION COSINES TO TARGET | -0.78462946 | 0.45792165 | 0.41792867 | 58.22044039 |
| CAMERA AXIS | -0.64715403 | 0.71481535 | 0.26501070 | 53.77462769 |
| C1 | -0.53018069 | 0.74659250 | 0.40188066 | 58.08320618 |
| C2 | -0.68758364 | 0.72089683 | 0.08681307 | 51.7C010376 |
| C3 | -0.74249565 | 0.65914483 | 0.11928252 | 51.72897339 |
| C4 | -0.58509270 | 0.68484C51 | 0.43435010 | 58.11981201 |

| | X | Y | Z | X DOT | Y DOT | Z DOT |
|---|---|---|---|---|---|---|
| STATE VECTOR (1950.0) | -514.1334000 | -1593.1148224 | -631.9439240 | 1.7333160 | -0.1900013 | -0.7848992 |

LONG -40.4946 DEG
LATI 1.9767 DEG

LONG -41.2142 DEG
LATI 0.5972 DEG

(1) • 47.19572 KM • (2)

LOW RESOLUTION

42.82428 KM 32.78050 KM

(4) • 47.44310 KM • (3)

LONG -41.8067 DEG
LATI 2.5002 DEG

LONG -42.2203 DEG
LATI 0.9918 DEG

LONG -41.2621 DEG
LATI 1.7174 DEG

LONG -41.5165 DEG
LATI 1.0956 DEG

(1) • 20.37688 KM • (2)

HIGH RESOLUTION

5.15870 KM 4.59160 KM

(4) • 20.39023 KM • (3)

LONG -41.4202 DEG
LATI 1.7801 DEG

LONG -41.6573 DEG
LATI 1.1511 DEG

LOW RESOLUTION 170

| INDEX | LONGITUDE | LATITUDE |
|---|---|---|
| 1 | -40.4946027 | 1.9767122 |
| 2 | -40.5855331 | 1.8041586 |
| 3 | -40.6670036 | 1.6491261 |
| 4 | -40.7411795 | 1.5076191 |
| 5 | -40.8097000 | 1.3766050 |
| 6 | -40.8738356 | 1.2537102 |
| 7 | -40.9346070 | 1.1370216 |
| 8 | -40.9928718 | 1.0249450 |
| 9 | -41.0493441 | 0.9161085 |
| 10 | -41.1046720 | 0.8092903 |
| 11 | -41.1594467 | 0.7033524 |
| 12 | -41.2142420 | 0.5971984 |
| 13 | -41.3106842 | 0.6351171 |
| 14 | -41.4039025 | 0.6717508 |
| 15 | -41.4947305 | 0.7074266 |
| 16 | -41.5839224 | 0.7424441 |
| 17 | -41.6721787 | 0.7770757 |
| 18 | -41.7601686 | 0.8115887 |
| 19 | -41.8485646 | 0.8462408 |
| 20 | -41.9380336 | 0.8812993 |
| 21 | -42.0292950 | 0.9170400 |
| 22 | -42.1231079 | 0.9537625 |
| 23 | -42.2203355 | 0.9917981 |
| 24 | -42.1881347 | 1.1073367 |
| 25 | -42.1560597 | 1.2227259 |
| 26 | -42.1237874 | 1.3391619 |
| 27 | -42.0909648 | 1.4578868 |
| 28 | -42.0572371 | 1.5802436 |
| 29 | -42.0221915 | 1.7077419 |
| 30 | -41.9853668 | 1.8421370 |
| 31 | -41.9461989 | 1.9855454 |
| 32 | -41.9039950 | 2.1405949 |
| 33 | -41.8578811 | 2.3106538 |
| 34 | -41.8067060 | 2.5001668 |
| 35 | -41.6800437 | 2.4482847 |
| 36 | -41.5578790 | 2.3985199 |
| 37 | -41.4390678 | 2.3503790 |
| 38 | -41.3225856 | 2.3034283 |
| 39 | -41.2074800 | 2.2572716 |
| 40 | -41.0928488 | 2.2115426 |
| 41 | -40.9778013 | 2.1658871 |
| 42 | -40.8614421 | 2.1199481 |
| 43 | -40.7428222 | 2.0733679 |
| 44 | -40.6209202 | 2.0257623 |

HIGH RESOLUTION 170

| INDEX | LONGITUDE | LATITUDE |
|---|---|---|
| 1 | -41.2620668 | 1.7173665 |
| 2 | -41.2882504 | 1.6534300 |
| 3 | -41.3135834 | 1.5915613 |
| 4 | -41.3381586 | 1.5315282 |
| 5 | -41.3620644 | 1.4731224 |
| 6 | -41.3853755 | 1.4161552 |
| 7 | -41.4081678 | 1.3604524 |
| 8 | -41.4305062 | 1.3058536 |
| 9 | -41.4524479 | 1.2522101 |
| 10 | -41.4740520 | 1.1993812 |
| 11 | -41.4953756 | 1.1472361 |
| 12 | -41.5164676 | 1.0956494 |
| 13 | -41.5292807 | 1.1006918 |
| 14 | -41.5420876 | 1.1057325 |
| 15 | -41.5548873 | 1.1107714 |
| 16 | -41.5676837 | 1.1158104 |
| 17 | -41.5804801 | 1.1208468 |
| 18 | -41.5932765 | 1.1258850 |
| 19 | -41.6060762 | 1.1309248 |
| 20 | -41.6188793 | 1.1359663 |
| 21 | -41.6316857 | 1.1410113 |
| 22 | -41.6445026 | 1.1460588 |
| 23 | -41.6573262 | 1.1511105 |
| 24 | -41.6376452 | 1.2032863 |
| 25 | -41.6177521 | 1.2560291 |
| 26 | -41.5976000 | 1.3094668 |
| 27 | -41.5771399 | 1.3637309 |
| 28 | -41.5563145 | 1.4189632 |
| 29 | -41.5350695 | 1.4753166 |
| 30 | -41.5133424 | 1.5329506 |
| 31 | -41.4910693 | 1.5920428 |
| 32 | -41.4681778 | 1.6527854 |
| 33 | -41.4445863 | 1.7153900 |
| 34 | -41.4202061 | 1.7800890 |
| 35 | -41.4058080 | 1.7743679 |
| 36 | -41.3914237 | 1.7686527 |
| 37 | -41.3770461 | 1.7629427 |
| 38 | -41.3626719 | 1.7572377 |
| 39 | -41.3483047 | 1.7515362 |
| 40 | -41.3339410 | 1.7458382 |
| 41 | -41.3195734 | 1.7401426 |
| 42 | -41.3052063 | 1.7344488 |
| 43 | -41.2908320 | 1.7287541 |
| 44 | -41.2764544 | 1.7230612 |

**********
* PHOTO FRAME NUMBER 1 OF 1 *
**********

## FRAME 171

| | YEAR | MONTH | DAY | HOUR | MINUTE | SECOND |
|---|---|---|---|---|---|---|
| GMT | 67 | 2 | 21 | 15 | 31 | 2.399 |

| | | | | | |
|---|---|---|---|---|---|
| LONGITUDE OF NADIR POINT | = | -33.5370483 | DEG | LATITUDE OF NADIR POINT | = -2.9334339 DEG |
| LONG OF CAMERA AXIS INTERSECT | = | -36.8014684 | DEG | LATI OF CAMERA AXIS INTERSECT | = -3.7815999 DEG |
| SPACECRAFT RADIUS | = | 1788.6434174 | KM | SPACECRAFT ALTITUDE | = 50.5534210 KM |
| MEAN ALTITUDE RATE | = | 0.0380274 | KM/SEC | TIME FROM PERIAPSIS | = 73.9996872 SEC |
| HORIZONTAL VELOCITY | = | 1.9123862 | KM/SEC | TRUE ANOMALY | = 4.5379615 DEG |
| SCALE FACTOR (HIGH) | = | 0.0052912 | M/KM | TILT DISTANCE (HIGH) | = 1162.8517456 MM |
| SCALE FACTOR (LOW) | = | 0.0006939 | M/KM | TILT DISTANCE (LOW) | = 152.5051479 MM |
| IMAGE MOTION COMPENSATION (V/H) | = | 0.0111271 | RAD/SEC | SWING ANGLE | = 20.7899711 DEG |
| EMISSION ANGLE | = | 65.6870918 | DEG | INCIDENCE ANGLE | = 71.8291969 DEG |
| PHASE ANGLE | = | 15.0491726 | DEG | NORTH DEVIATION ANGLE | = 296.8629570 DEG |
| TILT ANGLE | = | 62.3197336 | DEG | RESOLUTION CONSTANT | = 2.5016875 MTR |
| TILT AZIMUTH | = | 255.3197136 | DEG | SUN AZIMUTH AT PRINCIPAL GND PT | = 90.2668018 DEG |
| SUN ANGLE AT NADIR | = | 68.5751657 | DEG | SUN ARC AT NADIR | = 2080.2546387 KM |
| LONGITUDE DISTANCE TO TARGET | = | 3.6299515 | DEG | LATITUDE DISTANCE TO TARGET | = 0.5665661 DEG |
| LONGITUDE ARC LENGTH TO TARGET | = | 110.1160049 | KM | LATITUDE ARC LENGTH TO TARGET | = 17.1870067 KM |
| FORWARD OVERLAP RATIO | = | 0. | PCT | SIDE OVERLAP RATIO | = 0. PCT |
| TIME BETWEEN PHOTOS | = | 0. | SEC | ALPHA | = 38.7337689 DEG. |

| DIRECTION COSINES TO TARGET | X | Y | Z | MAGNITUDE (KM) |
|---|---|---|---|---|
| CAMERA AXIS | -0.86092368 | -0.49489906 | -0.11783604 | 123.66946506 |
| C1 | -0.86954635 | -0.45138372 | -0.20035437 | 115.28514059 |
| C2 | -0.94460238 | -0.29340740 | -0.14710016 | 83.98490906 |
| C3 | -0.77247727 | -0.54737136 | -0.32196812 | 182.13817978 |
| C4 | -0.76542495 | -0.59427211 | -0.24691156 | 209.28759766 |
| | -0.93755005 | -0.34030816 | -0.07204362 | 88.31855011 |

| | X | Y | Z | X DOT | Y DOT | Z DOT |
|---|---|---|---|---|---|---|
| STATE VECTOR (1950.0) | -204.7247162 | -1605.5682373 | -761.2382736 | 1.7868667 | 0.0524175 | -0.6804613 |

LONG -34.6227 DEG
LATI -3.5548 DEG

LONG -44.1817 DEG
LATI -11.3966 DEG

(1) * 63.51282 KM * (2)

LOW RESOLUTION

49.30301 KM 418.34318 KM

(4) * 253.65061 KM * (3)

LONG -35.6566 DEG
LATI -2.2996 DEG

LONG -45.6162 DEG
LATI -2.6913 DEG

LONG -35.6632 DEG
LATI -3.4267 DEG

LONG -38.8664 DEG
LATI -4.9568 DEG

(1) * 107.43201 KM * (2)

HIGH RESOLUTION

8.78927 KM 32.21150 KM

(4) * 130.14810 KM * (3)

LONG -35.8753 DEG
LATI -3.2289 DEG

LONG -39.9067 DEG
LATI -4.7263 DEG

LOW RESOLUTION 171

| INDEX | LONGITUDE | LATITUDE |
|---|---|---|
| 1 | -34.6227336 | -3.5547839 |
| 2 | -34.7634664 | -3.6771475 |
| 3 | -34.9216022 | -3.8144318 |
| 4 | -35.1027594 | -3.9714262 |
| 5 | -35.3150554 | -4.1550217 |
| 6 | -35.5707674 | -4.3756070 |
| 7 | -35.8896246 | -4.6497989 |
| 8 | -36.3059688 | -5.0063587 |
| 9 | -36.8870440 | -5.5011478 |
| 10 | -37.7928123 | -6.2656065 |
| 11 | -39.6081161 | -7.7714958 |
| 12 | 0. | 0. |
| 13 | 0. | 0. |
| 14 | 0. | 0. |
| 15 | 0. | 0. |
| 16 | 0. | 0. |
| 17 | 0. | 0. |
| 18 | 0. | 0. |
| 19 | 0. | 0. |
| 20 | 0. | 0. |
| 21 | 0. | 0. |
| 22 | 0. | 0. |
| 23 | 0. | 0. |
| 24 | 0. | 0. |
| 25 | 0. | 0. |
| 26 | 0. | 0. |
| 27 | -42.8053856 | -2.6799476 |
| 28 | -39.6745977 | -2.5754756 |
| 29 | -38.2924304 | -2.4985583 |
| 30 | -37.4274278 | -2.4408244 |
| 31 | -36.8130660 | -2.3953311 |
| 32 | -36.3441634 | -2.3581023 |
| 33 | -35.9685268 | -2.3267099 |
| 34 | -35.6566467 | -2.2995881 |
| 35 | -35.5252748 | -2.4562094 |
| 36 | -35.4068360 | -2.5981194 |
| 37 | -35.2986493 | -2.7283361 |
| 38 | -35.1986518 | -2.8491937 |
| 39 | -35.1052318 | -2.9625458 |
| 40 | -35.0170779 | -3.0698951 |
| 41 | -34.9331212 | -3.1724896 |
| 42 | -34.8524499 | -3.2713933 |
| 43 | -34.7742820 | -3.3675342 |
| 44 | -34.6979203 | -3.4617413 |

CORNER 2, 1 OF LOW RESOLUTION FRAME 1 IS OFF THE MOON

HIGH RESOLUTION 171

| INDEX | LONGITUDE | LATITUDE |
|---|---|---|
| 1 | -35.6632380 | -3.4267315 |
| 2 | -35.7996984 | -3.4938585 |
| 3 | -35.9495625 | -3.5673821 |
| 4 | -36.1154337 | -3.6485162 |
| 5 | -36.3006616 | -3.7388165 |
| 6 | -36.5096278 | -3.8403113 |
| 7 | -36.7482305 | -3.9557040 |
| 8 | -37.0246210 | -4.0887117 |
| 9 | -37.3505201 | -4.2446287 |
| 10 | -37.7435603 | -4.4313549 |
| 11 | -38.2321882 | -4.6614469 |
| 12 | -38.8664360 | -4.9567621 |
| 13 | -38.9468751 | -4.9372696 |
| 14 | -39.0296230 | -4.9175099 |
| 15 | -39.1148229 | -4.8974769 |
| 16 | -39.2026315 | -4.8771605 |
| 17 | -39.2932100 | -4.8565539 |
| 18 | -39.3867459 | -4.8356449 |
| 19 | -39.4834409 | -4.8144270 |
| 20 | -39.5835204 | -4.7928879 |
| 21 | -39.6872334 | -4.7710220 |
| 22 | -39.7948532 | -4.7488187 |
| 23 | -39.9066911 | -4.7262688 |
| 24 | -39.0193090 | -4.4096656 |
| 25 | -38.3759637 | -4.1755259 |
| 26 | -37.8776703 | -3.9915232 |
| 27 | -37.4752698 | -3.8412454 |
| 28 | -37.1406350 | -3.7151302 |
| 29 | -36.8561544 | -3.6071014 |
| 30 | -36.6100760 | -3.5130531 |
| 31 | -36.3941979 | -3.4300851 |
| 32 | -36.2025566 | -3.3560731 |
| 33 | -36.0307155 | -3.2894199 |
| 34 | -35.8752708 | -3.2288933 |
| 35 | -35.8549852 | -3.2477259 |
| 36 | -35.8349214 | -3.2663749 |
| 37 | -35.8150697 | -3.2848428 |
| 38 | -35.7954259 | -3.3031358 |
| 39 | -35.7759871 | -3.3212597 |
| 40 | -35.7567396 | -3.3392205 |
| 41 | -35.7376833 | -3.3570217 |
| 42 | -35.7188082 | -3.3746683 |
| 43 | -35.7001138 | -3.3921664 |
| 44 | -35.6815906 | -3.4095202 |

**********
* PHOTO FRAME NUMBER 1 OF 1 *
**********

## FRAME 172

| | YEAR | MONTH | DAY | HOUR | MINUTE | SECOND |
|---|---|---|---|---|---|---|
| GMT | 67 | 2 | 21 | 18 | 58 | 12.599 |

| | | | | | |
|---|---|---|---|---|---|
| LONGITUDE OF NADIR POINT | = | -39.8995247 | DEG | LATITUDE OF NADIR POINT | = -1.2372384 DEG |
| LONG OF CAMERA AXIS INTERSECT | = | -43.8226671 | DEG | LATI OF CAMERA AXIS INTERSECT | = -2.2824417 DEG |
| SPACECRAFT RADIUS | = | 1787.6981049 | KM | SPACECRAFT ALTITUDE | = 49.6081085 KM |
| MEAN ALTITUDE RATE | = | -0.0023608 | KM/SEC | TIME FROM PERIAPSIS | = -4.5913596 SEC |
| HORIZONTAL VELOCITY | = | 1.9135244 | KM/SEC | TRUE ANOMALY | = 359.7184029 DEG |
| SCALE FACTOR (HIGH) | = | 0.0045414 | M/KM | TILT DISTANCE (HIGH) | = 1390.3527069 MM |
| SCALE FACTOR (LOW) | = | 0.0005956 | M/KM | TILT DISTANCE (LOW) | = 182.3413391 MM |
| IMAGE MOTION COMPENSATION (V/H) | = | 0.0094848 | RAD/SEC | SWING ANGLE | = 21.1748781 DEG |
| EMISSION ANGLE | = | 70.3692865 | DEG | INCIDENCE ANGLE | = 77.1121483 DEG |
| PHASE ANGLE | = | 16.5891101 | DEG | NORTH DEVIATION ANGLE | = 296.2682381 DEG |
| TILT ANGLE | = | 66.3111315 | DEG | RESOLUTION CONSTANT | = 2.9147508 MTR |
| TILT AZIMUTH | = | 255.0205784 | DEG | SUN AZIMUTH AT PRINCIPAL GND PT | = 90.9449368 DEG |
| SUN ANGLE AT NADIR | = | 73.2101221 | DEG | SUN ARC AT NADIR | = 2220.8578796 KM |
| LONGITUDE DISTANCE TO TARGET | = | 4.0174751 | DEG | LATITUDE DISTANCE TO TARGET | = 1.0957616 DEG |
| LONGITUDE ARC LENGTH TO TARGET | = | 121.8716879 | KM | LATITUDE ARC LENGTH TO TARGET | = 33.2403598 KM |
| FORWARD OVERLAP RATIO | = | 0. | PCT | SIDE OVERLAP RATIO | = 0. PCT |
| TIME BETWEEN PHOTOS | = | 0. | SEC | ALPHA | = 45.8855734 DEG. |

| | X | Y | Z | MAGNITUDE (KM) |
|---|---|---|---|---|
| DIRECTION COSINES TO TARGET | -0.87517376 | -0.42335887 | -0.23417550 | 137.30113792 |
| CAMERA AXIS | -0.87951011 | -0.41772576 | -0.22796306 | 134.32031250 |
| C1 | -0.94977551 | -0.25583738 | -0.18020468 | 91.45010376 |
| C2 | -0.78193071 | -0.51979002 | -0.34409697 | 264.41254807 |
| C3 | -0.78368000 | -0.56157468 | -0.26547980 | 376.90890503 |
| C4 | -0.94769107 | -0.30169864 | -0.10420928 | 97.06388092 |

| | X | Y | Z | X DOT | Y DOT | Z DOT |
|---|---|---|---|---|---|---|
| STATE VECTOR (1950.0) | -343.3779449 | -1605.7765961 | -706.7090378 | 1.7678750 | -0.0540216 | -0.7302614 |

LONG -41.1352 DEG
LATI -1.9116 DEG

LONG -48.8521 DEG
LATI -8.2902 DEG

(1) * 65.84404 KM * (2)

LOW RESOLUTION

53.55114 KM 352.67865 KM

(4) * 147.50101 KM * (3)

LONG -42.3115 DEG
LATI -0.5949 DEG

LONG -50.8680 DEG
LATI -0.7749 DEG

LONG -42.3297 DEG
LATI -1.8160 DEG

LONG -47.7939 DEG
LATI -4.2757 DEG

(1) * 181.47014 KM * (2)

HIGH RESOLUTION

10.07407 KM 264.41256 KM

(4) * 286.46066 KM * (3)

LONG -42.5872 DEG
LATI -1.6061 DEG

LONG -51.6167 DEG
LATI -4.5758 DEG

LOW RESOLUTION 172

| INDEX | LONGITUDE | LATITUDE |
|---|---|---|
| 1 | -41.1352162 | -1.9115804 |
| 2 | -41.2900944 | -2.0456997 |
| 3 | -41.4670887 | -2.1987019 |
| 4 | -41.6739168 | -2.3771175 |
| 5 | -41.9221668 | -2.5907351 |
| 6 | -42.2303381 | -2.8550882 |
| 7 | -42.6302834 | -3.1967854 |
| 8 | -43.1833920 | -3.6667153 |
| 9 | -44.0316572 | -4.3813246 |
| 10 | -45.6569896 | -5.7290542 |
| 11 | 0. | 0. |
| 12 | 0. | 0. |
| 13 | 0. | 0. |
| 14 | 0. | 0. |
| 15 | 0. | 0. |
| 16 | 0. | 0. |
| 17 | 0. | 0. |
| 18 | 0. | 0. |
| 19 | 0. | 0. |
| 20 | 0. | 0. |
| 21 | 0. | 0. |
| 22 | 0. | 0. |
| 23 | 0. | 0. |
| 24 | 0. | 0. |
| 25 | 0. | 0. |
| 26 | 0. | 0. |
| 27 | 0. | 0. |
| 28 | -49.9231834 | -0.7880322 |
| 29 | -46.1777673 | -0.7594581 |
| 30 | -44.7034063 | -0.7128796 |
| 31 | -43.8028798 | -0.6746135 |
| 32 | -43.1710806 | -0.6433236 |
| 33 | -42.6926122 | -0.6171904 |
| 34 | -42.3114500 | -0.5948685 |
| 35 | -42.1558995 | -0.7650392 |
| 36 | -42.0173216 | -0.9176402 |
| 37 | -41.8920560 | -1.0564014 |
| 38 | -41.7773499 | -1.1841490 |
| 39 | -41.6710858 | -1.3030840 |
| 40 | -41.5715904 | -1.4149582 |
| 41 | -41.4775081 | -1.5212061 |
| 42 | -41.3877215 | -1.6230245 |
| 43 | -41.3012791 | -1.7214390 |
| 44 | -41.2173562 | -1.8173519 |

CORNER 2 , 3 OF LOW RESOLUTION FRAME 1 IS OFF THE MOON

HIGH RESOLUTION 172

| INDEX | LONGITUDE | LATITUDE |
|---|---|---|
| 1 | -42.3297482 | -1.8160073 |
| 2 | -42.4973745 | -1.8954688 |
| 3 | -42.6848464 | -1.9840413 |
| 4 | -42.8967118 | -2.0837643 |
| 5 | -43.1391220 | -2.1973763 |
| 6 | -43.4206319 | -2.3286548 |
| 7 | -43.7536068 | -2.4830170 |
| 8 | -44.1568408 | -2.6686172 |
| 9 | -44.6609225 | -2.8985709 |
| 10 | -45.3208213 | -3.1961204 |
| 11 | -46.2525582 | -3.6094646 |
| 12 | -47.7939405 | -4.2756744 |
| 13 | -48.0174446 | -4.2877374 |
| 14 | -48.2607532 | -4.3034648 |
| 15 | -48.5282235 | -4.3238810 |
| 16 | -48.8260093 | -4.3504753 |
| 17 | -49.1633115 | -4.3855329 |
| 18 | -49.5549645 | -4.4328456 |
| 19 | -50.0279689 | -4.4995083 |
| 20 | -50.6427169 | -4.6018586 |
| 21 | -51.6224871 | -4.8022529 |
| 22 | 0. | 0. |
| 23 | 0. | 0. |
| 24 | -48.0630736 | -3.4944741 |
| 25 | -46.4792147 | -2.9757358 |
| 26 | -45.5177665 | -2.6498863 |
| 27 | -44.8351536 | -2.4135395 |
| 28 | -44.3127913 | -2.2298860 |
| 29 | -43.8943467 | -2.0810280 |
| 30 | -43.5484076 | -1.9567979 |
| 31 | -43.2556453 | -1.8508404 |
| 32 | -43.0033245 | -1.7589163 |
| 33 | -42.7826238 | -1.6780554 |
| 34 | -42.5871987 | -1.6060993 |
| 35 | -42.5623298 | -1.6262407 |
| 36 | -42.5377789 | -1.6461515 |
| 37 | -42.5135417 | -1.6658353 |
| 38 | -42.4896054 | -1.6853022 |
| 39 | -42.4659629 | -1.7045573 |
| 40 | -42.4426003 | -1.7236084 |
| 41 | -42.4195142 | -1.7424606 |
| 42 | -42.3966942 | -1.7611216 |
| 43 | -42.3741307 | -1.7795955 |
| 44 | -42.3518167 | -1.7978885 |

CORNER 3 OF HIGH RESOLUTION FRAME 1 IS OFF THE MOON

**********
* PHOTO FRAME NUMBER 1 OF 8 *
**********

## FRAME 173

| | YEAR | MONTH | DAY | HOUR | MINUTE | SECOND |
|---|---|---|---|---|---|---|
| GMT | 67 | 2 | 21 | 22 | 27 | 58.899 |

| | | | | | | |
|---|---|---|---|---|---|---|
| LONGITUDE OF NADIR POINT | = | -37.3355840 | DEG | LATITUDE OF NADIR POINT | = | -3.1181512 DEG |
| LONG OF CAMERA AXIS INTERSECT | = | -37.3346944 | DEG | LATI OF CAMERA AXIS INTERSECT | = | -3.2114601 DEG |
| SPACECRAFT RADIUS | = | 1789.6484070 | KM | SPACECRAFT ALTITUDE | = | 51.5584106 KM |
| MEAN ALTITUDE RATE | = | 0.0380677 | KM/SEC | TIME FROM PERIAPSIS | = | 74.2487822 SEC |
| HORIZONTAL VELOCITY | = | 1.9115637 | KM/SEC | TRUE ANOMALY | = | 4.5487414 DEG |
| SCALE FACTOR (HIGH) | = | 0.0118112 | M/KM | TILT DISTANCE (HIGH) | = | 35.0761900 MM |
| SCALE FACTOR (LOW) | = | 0.0015490 | M/KM | TILT DISTANCE (LOW) | = | 4.6001561 MM |
| IMAGE MOTION COMPENSATION (V/H) | = | 0.0370143 | RAD/SEC | SWING ANGLE | = | 356.3932724 DEG |
| EMISSION ANGLE | = | 3.3887214 | DEG | INCIDENCE ANGLE | = | 68.8552008 DEG |
| PHASE ANGLE | = | 67.8995953 | DEG | NORTH DEVIATION ANGLE | = | 339.0569916 DEG |
| TILT ANGLE | = | 3.2909951 | DEG | RESOLUTION CONSTANT | = | 1.1207204 MTR |
| TILT AZIMUTH | = | 197.3061619 | DEG | SUN AZIMUTH AT PRINCIPAL GND PT | = | 90.2892323 DEG |
| SUN ANGLE AT NADIR | = | 68.8266258 | DEG | SUN ARC AT NADIR | = | 2087.8827820 KM |
| LONGITUDE DISTANCE TO TARGET | = | -0.3725839 | DEG | LATITUDE DISTANCE TO TARGET | = | 0.1648488 DEG |
| LONGITUDE ARC LENGTH TO TARGET | = | -11.3024782 | KM | LATITUDE ARC LENGTH TO TARGET | = | 5.0007533 KM |
| FORWARD OVERLAP RATIO | = | 0. | PCT | SIDE OVERLAP RATIO | = | 0. PCT |
| TIME BETWEEN PHOTOS | = | 0. | SEC | ALPHA | = | 0.9196448 DEG. |

| DIRECTION COSINES TO TARGET | X | Y | Z | MAGNITUDE (KM) |
|---|---|---|---|---|
| CAMERA AXIS | -0.64763685 | 0.76083200 | -0.04124543 | 53.05784082 |
| C1 | -0.80564827 | 0.59239404 | -0.00042079 | 51.64610291 |
| C2 | -0.73037335 | 0.66666031 | 0.14872390 | 52.00717163 |
| C3 | -0.80484295 | 0.56514826 | -0.18120506 | 53.12413025 |
| C4 | -0.85399364 | 0.49832643 | -0.14955141 | 53.10606384 |
| | -0.77952405 | 0.59983849 | 0.18037754 | 51.98985291 |

| | X | Y | Z | X DOT | Y DOT | Z DOT |
|---|---|---|---|---|---|---|
| STATE VECTOR (1950.0) | -203.2645454 | -1604.1711121 | -766.9159241 | 1.7896341 | 0.0514991 | -0.6708823 |

LONG -36.5546 DEG
LATI -2.7808 DEG

LONG -37.0260 DEG
LATI -4.0945 DEG

(1) * 42.32704 KM * (2)

LOW RESOLUTION

34.79432 KM 36.52227 KM

(4) * 42.21732 KM * (3)

LONG -37.6278 DEG
LATI -2.3731 DEG

LONG -38.1523 DEG
LATI -3.6625 DEG

LONG -37.1552 DEG
LATI -2.9554 DEG

LONG -37.3727 DEG
LATI -3.5286 DEG

(1) * 18.59524 KM * (2)

HIGH RESOLUTION

4.61676 KM 4.71589 KM

(4) * 18.58896 KM * (3)

LONG -37.2975 DEG
LATI -2.9012 DEG

LONG -37.5181 DEG
LATI -3.4730 DEG

LOW RESOLUTION 173

| INDEX | LONGITUDE | LATITUDE |
|---|---|---|
| 1 | -36.5546422 | -2.7808440 |
| 2 | -36.5994039 | -2.9042143 |
| 3 | -36.6423659 | -3.0229034 |
| 4 | -36.6840606 | -3.1383446 |
| 5 | -36.7249599 | -3.2518223 |
| 6 | -36.7654972 | -3.3645383 |
| 7 | -36.8060923 | -3.4776565 |
| 8 | -36.8471689 | -3.5923635 |
| 9 | -36.8891749 | -3.7099119 |
| 10 | -36.9325910 | -3.8316806 |
| 11 | -36.9779706 | -3.9592480 |
| 12 | -37.0259562 | -4.0944781 |
| 13 | -37.1345458 | -4.0523375 |
| 14 | -37.2393551 | -4.0117636 |
| 15 | -37.3413467 | -3.9723748 |
| 16 | -37.4413786 | -3.9338337 |
| 17 | -37.5402522 | -3.8958263 |
| 18 | -37.6387334 | -3.8580588 |
| 19 | -37.7375665 | -3.8202426 |
| 20 | -37.8375125 | -3.7820908 |
| 21 | -37.9393711 | -3.7433013 |
| 22 | -38.0439992 | -3.7035539 |
| 23 | -38.1523466 | -3.6624985 |
| 24 | -38.0978622 | -3.5301747 |
| 25 | -38.0465674 | -3.4052633 |
| 26 | -37.9976974 | -3.2859502 |
| 27 | -37.9506102 | -3.1706993 |
| 28 | -37.9047418 | -3.0581651 |
| 29 | -37.8595843 | -2.9471233 |
| 30 | -37.8146687 | -2.8364119 |
| 31 | -37.7695279 | -2.7248851 |
| 32 | -37.7236838 | -2.6113631 |
| 33 | -37.6766343 | -2.4945754 |
| 34 | -37.6278186 | -2.3731073 |
| 35 | -37.5248947 | -2.4126371 |
| 36 | -37.4254336 | -2.4507504 |
| 37 | -37.3285403 | -2.4878007 |
| 38 | -37.2334061 | -2.5240998 |
| 39 | -37.1392760 | -2.5599395 |
| 40 | -37.0454326 | -2.5955948 |
| 41 | -36.9511657 | -2.6313346 |
| 42 | -36.8557477 | -2.6674347 |
| 43 | -36.7584176 | -2.7041786 |
| 44 | -36.6583552 | -2.7418684 |

HIGH RESOLUTION 173

| INDEX | LONGITUDE | LATITUDE |
|---|---|---|
| 1 | -37.1551628 | -2.9554006 |
| 2 | -37.1748815 | -3.0073433 |
| 3 | -37.1944809 | -3.0589770 |
| 4 | -37.2140050 | -3.1104186 |
| 5 | -37.2334981 | -3.1617790 |
| 6 | -37.2530017 | -3.2131702 |
| 7 | -37.2725601 | -3.2647066 |
| 8 | -37.2922139 | -3.3164990 |
| 9 | -37.3120079 | -3.3686655 |
| 10 | -37.3319931 | -3.4213245 |
| 11 | -37.3522072 | -3.4746017 |
| 12 | -37.3727078 | -3.5286242 |
| 13 | -37.3859448 | -3.5235579 |
| 14 | -37.3991747 | -3.5184951 |
| 15 | -37.4123979 | -3.5134356 |
| 16 | -37.4256144 | -3.5083795 |
| 17 | -37.4388275 | -3.5033252 |
| 18 | -37.4520402 | -3.4982709 |
| 19 | -37.4652534 | -3.4932182 |
| 20 | -37.4784698 | -3.4881648 |
| 21 | -37.4916863 | -3.4831113 |
| 22 | -37.5049129 | -3.4780561 |
| 23 | -37.5181432 | -3.4729992 |
| 24 | -37.4973350 | -3.4191166 |
| 25 | -37.4768133 | -3.3659769 |
| 26 | -37.4565382 | -3.3134511 |
| 27 | -37.4364572 | -3.2614144 |
| 28 | -37.4165201 | -3.2097492 |
| 29 | -37.3966885 | -3.1583383 |
| 30 | -37.3769150 | -3.1070692 |
| 31 | -37.3571587 | -3.0558300 |
| 32 | -37.3373752 | -3.0045080 |
| 33 | -37.3175197 | -2.9529912 |
| 34 | -37.2975483 | -2.9011646 |
| 35 | -37.2845984 | -2.9061020 |
| 36 | -37.2716517 | -2.9110351 |
| 37 | -37.2587118 | -2.9159665 |
| 38 | -37.2457757 | -2.9208953 |
| 39 | -37.2328391 | -2.9258233 |
| 40 | -37.2199063 | -2.9307496 |
| 41 | -37.2069697 | -2.9356767 |
| 42 | -37.1940265 | -2.9406056 |
| 43 | -37.1810799 | -2.9455335 |
| 44 | -37.1681266 | -2.9504658 |

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* PHOTO FRAME NUMBER 2 OF 8 *
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## FRAME 174

| | YEAR | MONTH | DAY | HOUR | MINUTE | SECOND |
|---|---|---|---|---|---|---|
| GMT | 67 | 2 | 21 | 22 | 28 | 1.199 |

| | | | | | | |
|---|---|---|---|---|---|---|
| LONGITUDE OF NADIR POINT | = | -37.1739197 | DEG | LATITUDE OF NADIR POINT | = | -3.1674916 DEG |
| LONG OF CAMERA AXIS INTERSECT | = | -37.1991491 | DEG | LATI OF CAMERA AXIS INTERSECT | = | -3.2624321 DEG |
| SPACECRAFT RADIUS | = | 1789.7373047 | KM | SPACECRAFT ALTITUDE | = | 51.6473083 KM |
| MEAN ALTITUDE RATE | = | 0.0392421 | KM/SEC | TIME FROM PERIAPSIS | = | 76.5468693 SEC |
| HORIZONTAL VELOCITY | = | 1.9114692 | KM/SEC | TRUE ANOMALY | = | 4.6893750 DEG |
| SCALE FACTOR (HIGH) | = | 0.0117907 | M/KM | TILT DISTANCE (HIGH) | = | 35.1926823 MM |
| SCALE FACTOR (LOW) | = | 0.0015463 | M/KM | TILT DISTANCE (LOW) | = | 4.6154338 MM |
| IMAGE MOTION COMPENSATION (V/H) | = | 0.0369459 | RAD/SEC | SWING ANGLE | = | 353.9530716 DEG |
| EMISSION ANGLE | = | 3.4001417 | DEG | INCIDENCE ANGLE | = | 68.7193012 DEG |
| PHASE ANGLE | = | 67.8995962 | DEG | NORTH DEVIATION ANGLE | = | 339.0638390 DEG |
| TILT ANGLE | = | 3.3019008 | DEG | RESOLUTION CONSTANT | = | 1.1226657 MTR |
| TILT AZIMUTH | = | 194.8627720 | DEG | SUN AZIMUTH AT PRINCIPAL GMC PT | = | 90.2620287 DEG |
| SUN ANGLE AT NADIR | = | 68.6945677 | DEG | SUN ARC AT NADIR | = | 2083.8767700 KM |
| LONGITUDE DISTANCE TO TARGET | = | -0.2409196 | DEG | LATITUDE DISTANCE TO TARGET | = | 0.1155083 DEG |
| LONGITUDE ARC LENGTH TO TARGET | = | -7.3083905 | KM | LATITUDE ARC LENGTH TO TARGET | = | 3.5039912 KM |
| FORWARD OVERLAP RATIO | = | 6.0510981 | PCT | SIDE OVERLAP RATIO | = | 0. PCT |
| TIME BETWEEN PHOTOS | = | 2.3006916 | SEC | ALPHA | = | 0.7824308 DEG. |

| DIRECTION COSINES TO TARGET | X | Y | Z | MAGNITUDE (KM) |
|---|---|---|---|---|
| CAMERA AXIS | -0.70465030 | 0.70944767 | -0.01232677 | 52.29631805 |
| C1 | -0.80564486 | 0.59239866 | -0.00042072 | 51.73574829 |
| C2 | -0.73036952 | 0.66666450 | 0.14872397 | 52.10350037 |
| C3 | -0.80483971 | 0.56515289 | -0.18120499 | 53.22241211 |
| C4 | -0.85399079 | 0.49833135 | -0.14955135 | 53.19197083 |
| | -0.77952060 | 0.59984295 | 0.18037761 | 52.07434082 |

| | X | Y | Z | X DOT | Y DOT | Z DOT |
|---|---|---|---|---|---|---|
| STATE VECTOR (1950.0) | -199.1479225 | -1604.0490265 | -768.4572144 | 1.7900306 | 0.0546551 | -0.6693716 |

LONG -36.4171 DEG
LATI -2.8307 DEG

LONG -36.8895 DEG
LATI -4.1478 DEG

(1) • 42.43828 KM • (2)

LOW RESOLUTION

34.85574 KM 36.58643 KM

(4) • 42.25361 KM • (3)

LONG -37.4926 DEG
LATI -2.4233 DEG

LONG -38.0174 DEG
LATI -3.7139 DEG

LONG -37.0193 DEG
LATI -3.0059 DEG

LONG -37.2372 DEG
LATI -3.5802 DEG

(1) • 18.62966 KM • (2)

HIGH RESOLUTION

4.62485 KM 4.72414 KM

(4) • 18.61908 KM • (3)

LONG -37.1620 DEG
LATI -2.9516 DEG

LONG -37.3829 DEG
LATI -3.5244 DEG

LOW RESOLUTION 174

| INDEX | LONGITUDE | LATITUDE |
|---|---|---|
| 1 | -36.4170961 | -2.8306728 |
| 2 | -36.4619565 | -2.9543701 |
| 3 | -36.5050211 | -3.0733750 |
| 4 | -36.5468116 | -3.1891220 |
| 5 | -36.5878029 | -3.3029027 |
| 6 | -36.6284289 | -3.4159184 |
| 7 | -36.6691165 | -3.5293397 |
| 8 | -36.7102852 | -3.6443549 |
| 9 | -36.7523832 | -3.7622201 |
| 10 | -36.7958951 | -3.8843183 |
| 11 | -36.8413701 | -4.0122323 |
| 12 | -36.8894649 | -4.1478355 |
| 13 | -36.9983859 | -4.1054320 |
| 14 | -37.1034789 | -4.0646190 |
| 15 | -37.2057133 | -4.0250125 |
| 16 | -37.3059497 | -3.9862700 |
| 17 | -37.4049940 | -3.9480772 |
| 18 | -37.5036082 | -3.9101372 |
| 19 | -37.6025472 | -3.8721605 |
| 20 | -37.7025685 | -3.8338568 |
| 21 | -37.8044715 | -3.7949273 |
| 22 | -37.9091101 | -3.7550501 |
| 23 | -38.0174298 | -3.7138709 |
| 24 | -37.9629183 | -3.5814318 |
| 25 | -37.9116030 | -3.4564095 |
| 26 | -37.8627090 | -3.3369879 |
| 27 | -37.8155975 | -3.2216328 |
| 28 | -37.7697024 | -3.1089962 |
| 29 | -37.7245240 | -2.9978511 |
| 30 | -37.6795812 | -2.8870381 |
| 31 | -37.6344132 | -2.7754080 |
| 32 | -37.5885420 | -2.6617776 |
| 33 | -37.5414648 | -2.5448781 |
| 34 | -37.4926186 | -2.4232939 |
| 35 | -37.3896332 | -2.4627297 |
| 36 | -37.2900763 | -2.5007653 |
| 37 | -37.1930637 | -2.5377499 |
| 38 | -37.0977788 | -2.5739960 |
| 39 | -37.0034747 | -2.6097930 |
| 40 | -36.9094262 | -2.6454167 |
| 41 | -36.8149238 | -2.6811386 |
| 42 | -36.7192397 | -2.7172268 |
| 43 | -36.6216054 | -2.7539707 |
| 44 | -36.5211983 | -2.7916733 |

HIGH RESOLUTION 174

| INDEX | LONGITUDE | LATITUDE |
|---|---|---|
| 1 | -37.0193138 | -3.0058860 |
| 2 | -37.0390635 | -3.0579269 |
| 3 | -37.0586901 | -3.1096596 |
| 4 | -37.0782447 | -3.1611985 |
| 5 | -37.0977688 | -3.2126563 |
| 6 | -37.1173029 | -3.2641456 |
| 7 | -37.1368923 | -3.3157785 |
| 8 | -37.1565766 | -3.3676708 |
| 9 | -37.1764050 | -3.4199363 |
| 10 | -37.1964140 | -3.4726961 |
| 11 | -37.2166619 | -3.5260740 |
| 12 | -37.2371898 | -3.5801998 |
| 13 | -37.2504544 | -3.5751165 |
| 14 | -37.2637081 | -3.5700382 |
| 15 | -37.2769551 | -3.5649634 |
| 16 | -37.2901955 | -3.5598911 |
| 17 | -37.3034291 | -3.5548214 |
| 18 | -37.3166628 | -3.5497526 |
| 19 | -37.3298960 | -3.5446846 |
| 20 | -37.3431330 | -3.5396174 |
| 21 | -37.3563700 | -3.5345486 |
| 22 | -37.3696136 | -3.5294788 |
| 23 | -37.3828645 | -3.5244074 |
| 24 | -37.3620286 | -3.4704353 |
| 25 | -37.3414836 | -3.4172068 |
| 26 | -37.3211775 | -3.3645930 |
| 27 | -37.3010693 | -3.3124692 |
| 28 | -37.2811079 | -3.2607177 |
| 29 | -37.2612495 | -3.2092207 |
| 30 | -37.2414522 | -3.1578662 |
| 31 | -37.2216682 | -3.1065416 |
| 32 | -37.2018576 | -3.0551333 |
| 33 | -37.1819749 | -3.0035304 |
| 34 | -37.1619792 | -2.9516175 |
| 35 | -37.1490021 | -2.9565566 |
| 36 | -37.1360350 | -2.9614923 |
| 37 | -37.1230712 | -2.9664254 |
| 38 | -37.1101108 | -2.9713576 |
| 39 | -37.0971508 | -2.9762873 |
| 40 | -37.0841904 | -2.9812179 |
| 41 | -37.0712266 | -2.9861476 |
| 42 | -37.0582595 | -2.9910789 |
| 43 | -37.0452857 | -2.9960121 |
| 44 | -37.0323048 | -3.0009468 |

**********
* PHOTO FRAME NUMBER 3 OF 8 *
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## FRAME 175

| | YEAR | MONTH | DAY | HOUR | MINUTE | SECOND |
|---|---|---|---|---|---|---|
| GMT | 67 | 2 | 21 | 22 | 28 | 3.599 |

| | | | | | | |
|---|---|---|---|---|---|---|
| LONGITUDE OF NADIR POINT | = | -37.0365829 | DEG | LATITUDE OF NADIR POINT | = | -3.2189324 DEG |
| LONG OF CAMERA AXIS INTERSECT | = | -37.0577507 | DEG | LATI OF CAMERA AXIS INTERSECT | = | -3.3155855 DEG |
| SPACECRAFT RADIUS | = | 1789.8329163 | KM | SPACECRAFT ALTITUDE | = | 51.7429199 KM |
| MEAN ALTITUDE RATE | = | 0.0404666 | KM/SEC | TIME FROM PERIAPSIS | = | 78.9437962 SEC |
| HORIZONTAL VELOCITY | = | 1.9113677 | KM/SEC | TRUE ANOMALY | = | 4.8360416 DEG |
| SCALE FACTOR (HIGH) | = | 0.0117687 | M/KM | TILT DISTANCE (HIGH) | = | 35.3813195 MM |
| SCALE FACTOR (LOW) | = | 0.0015434 | M/KM | TILT DISTANCE (LOW) | = | 4.6401730 MM |
| IMAGE MOTION COMPENSATION (V/H) | = | 0.0368804 | RAD/SEC | SWING ANGLE | = | 351.4299774 DEG |
| EMISSION ANGLE | = | 3.4185110 | DEG | INCIDENCE ANGLE | = | 68.5775709 DEG |
| PHASE ANGLE | = | 67.8995972 | DEG | NORTH DEVIATION ANGLE | = | 339.0712395 DEG |
| TILT ANGLE | = | 3.3195599 | DEG | RESOLUTION CONSTANT | = | 1.1247650 MTR |
| TILT AZIMUTH | = | 192.3362045 | DEG | SUN AZIMUTH AT PRINCIPAL GND PT | = | 90.2333574 DEG |
| SUN ANGLE AT NADIR | = | 68.5568571 | DEG | SUN ARC AT NADIR | = | 2079.6992493 KM |
| LONGITUDE DISTANCE TO TARGET | = | -0.1035829 | DEG | LATITUDE DISTANCE TO TARGET | = | 0.0640676 DEG |
| LONGITUDE ARC LENGTH TO TARGET | = | -3.1422268 | KM | LATITUDE ARC LENGTH TO TARGET | = | 1.9435168 KM |
| FORWARD OVERLAP RATIO | = | 2.1851716 | PCT | SIDE OVERLAP RATIO | = | 0. PCT |
| TIME BETWEEN PHOTOS | = | 2.3998260 | SEC | ALPHA | = | 0.6392982 DEG. |

| DIRECTION COSINES TO TARGET | X | Y | Z | MAGNITUDE (KM) |
|---|---|---|---|---|
| CAMERA AXIS | -0.76023187 | 0.64938544 | 0.01860266 | 51.87824965 |
| C1 | -0.80564140 | 0.59240337 | -0.00042062 | 51.83248901 |
| C2 | -0.73036560 | 0.66666875 | 0.14872407 | 52.20727539 |
| C3 | -0.80483640 | 0.56515762 | -0.18120490 | 53.32827759 |
| C4 | -0.85398788 | 0.49833636 | -0.14955126 | 53.28492737 |
| | -0.77951709 | 0.59984748 | 0.18037770 | 52.16574097 |

| STATE VECTOR (1950.0) | X | Y | Z | X DOT | Y DOT | Z DOT |
|---|---|---|---|---|---|---|
| | -194.8531494 | -1603.9139557 | -770.0611420 | 1.7904354 | 0.0579463 | -0.6677929 |

LONG -36.2735 DEG
LATI -2.8826 DEG

LONG -36.7470 DEG
LATI -4.2035 DEG

(1) • 42.55721 KM • (2)

LOW RESOLUTION

34.92234 KM 36.65603 KM

(4) • 42.29405 KM • (3)

LONG -37.3516 DEG
LATI -2.4756 DEG

LONG -37.8767 DEG
LATI -3.7675 DEG

LONG -36.8776 DEG
LATI -3.0585 DEG

LONG -37.0958 DEG
LATI -3.6340 DEG

(1) • 18.66673 KM • (2)

HIGH RESOLUTION

4.63361 KM 4.73306 KM

(4) • 18.65166 KM • (3)

LONG -37.0206 DEG
LATI -3.0042 DEG

LONG -37.2418 DEG
LATI -3.5780 DEG

LOW RESOLUTION 175

| INDEX | LONGITUDE | LATITUDE |
|---|---|---|
| 1 | -36.2735496 | -2.8826044 |
| 2 | -36.3185263 | -3.0066509 |
| 3 | -36.3616929 | -3.1259931 |
| 4 | -36.4035826 | -3.2420679 |
| 5 | -36.4446731 | -3.3561713 |
| 6 | -36.4853978 | -3.4695081 |
| 7 | -36.5261807 | -3.5832529 |
| 8 | -36.5674491 | -3.6985978 |
| 9 | -36.6096458 | -3.8168010 |
| 10 | -36.6532564 | -3.9392526 |
| 11 | -36.6988411 | -4.0675389 |
| 12 | -36.7470489 | -4.2035382 |
| 13 | -36.8563251 | -4.1608564 |
| 14 | -36.9617252 | -4.1197916 |
| 15 | -37.0642157 | -4.0799537 |
| 16 | -37.1646738 | -4.0409977 |
| 17 | -37.2638993 | -4.0026086 |
| 18 | -37.3626676 | -3.9644859 |
| 19 | -37.4617224 | -3.9263376 |
| 20 | -37.5618324 | -3.8878751 |
| 21 | -37.6637831 | -3.8487953 |
| 22 | -37.7684388 | -3.8087789 |
| 23 | -37.8767381 | -3.7674717 |
| 24 | -37.8221993 | -3.6349020 |
| 25 | -37.7708530 | -3.5097550 |
| 26 | -37.7219319 | -3.3902156 |
| 27 | -37.6747932 | -3.2747435 |
| 28 | -37.6288738 | -3.1619925 |
| 29 | -37.5836649 | -3.0507355 |
| 30 | -37.5386949 | -2.9398073 |
| 31 | -37.4934964 | -2.8280611 |
| 32 | -37.4475942 | -2.7143120 |
| 33 | -37.4004827 | -2.5972904 |
| 34 | -37.3516026 | -2.4755755 |
| 35 | -37.2485452 | -2.5149157 |
| 36 | -37.1488857 | -2.5528711 |
| 37 | -37.0517368 | -2.5897900 |
| 38 | -36.9562883 | -2.6259831 |
| 39 | -36.8617926 | -2.6617392 |
| 40 | -36.7675257 | -2.6973321 |
| 41 | -36.6727705 | -2.7330327 |
| 42 | -36.5768027 | -2.7691132 |
| 43 | -36.4788442 | -2.8058587 |
| 44 | -36.3780718 | -2.8435768 |

HIGH RESOLUTION 175

| INDEX | LONGITUDE | LATITUDE |
|---|---|---|
| 1 | -36.8775840 | -3.0585143 |
| 2 | -36.8973641 | -3.1106619 |
| 3 | -36.9170284 | -3.1625005 |
| 4 | -36.9366140 | -3.2141444 |
| 5 | -36.9561720 | -3.2657072 |
| 6 | -36.9757371 | -3.3173016 |
| 7 | -36.9953604 | -3.3690403 |
| 8 | -37.0150757 | -3.4210385 |
| 9 | -37.0349345 | -3.4734115 |
| 10 | -37.0549812 | -3.5262780 |
| 11 | -37.0752635 | -3.5797653 |
| 12 | -37.0958257 | -3.6340029 |
| 13 | -37.1091137 | -3.6289025 |
| 14 | -37.1223950 | -3.6238063 |
| 15 | -37.1356626 | -3.6187153 |
| 16 | -37.1489301 | -3.6136259 |
| 17 | -37.1621876 | -3.6085391 |
| 18 | -37.1754451 | -3.6034549 |
| 19 | -37.1887026 | -3.5983715 |
| 20 | -37.2019563 | -3.5932873 |
| 21 | -37.2152171 | -3.5882040 |
| 22 | -37.2284813 | -3.5831197 |
| 23 | -37.2417526 | -3.5780329 |
| 24 | -37.2208862 | -3.5239626 |
| 25 | -37.2003140 | -3.4706393 |
| 26 | -37.1799803 | -3.4179299 |
| 27 | -37.1598449 | -3.3657123 |
| 28 | -37.1398530 | -3.3138669 |
| 29 | -37.1199670 | -3.2622776 |
| 30 | -37.1001387 | -3.2108300 |
| 31 | -37.0803280 | -3.1594132 |
| 32 | -37.0604897 | -3.1079127 |
| 33 | -37.0405760 | -3.0562159 |
| 34 | -37.0205503 | -3.0042100 |
| 35 | -37.0075521 | -3.0091508 |
| 36 | -36.9945579 | -3.0140890 |
| 37 | -36.9815669 | -3.0190247 |
| 38 | -36.9685793 | -3.0239595 |
| 39 | -36.9555950 | -3.0288926 |
| 40 | -36.9426074 | -3.0338265 |
| 41 | -36.9296165 | -3.0387596 |
| 42 | -36.9166217 | -3.0436953 |
| 43 | -36.9036174 | -3.0486318 |
| 44 | -36.8906059 | -3.0535709 |

**********
* PHOTO FRAME NUMBER 4 OF 8 *
**********

## FRAME 176

| | YEAR | MONTH | DAY | HOUR | MINUTE | SECOND |
|---|---|---|---|---|---|---|
| GMT | 67 | 2 | 21 | 22 | 28 | 5.899 |

| | | | | | |
|---|---|---|---|---|---|
| LONGITUDE OF NADIR POINT | = | -36.9049187 DEG | LATITUDE OF NADIR POINT | = | -3.2682275 DEG |
| LONG OF CAMERA AXIS INTERSECT | = | -36.9221749 DEG | LATI OF CAMERA AXIS INTERSECT | = | -3.3665319 DEG |
| SPACECRAFT RADIUS | = | 1789.9273376 KM | SPACECRAFT ALTITUDE | = | 51.8373413 KM |
| MEAN ALTITUDE RATE | = | 0.0416403 KM/SEC | TIME FROM PERIAPSIS | = | 81.2418652 SEC |
| HORIZONTAL VELOCITY | = | 1.9112673 KM/SEC | TRUE ANOMALY | = | 4.9766462 DEG |
| SCALE FACTOR (HIGH) | = | 0.0117473 M/KM | TILT DISTANCE (HIGH) | = | 35.6260314 MM |
| SCALE FACTOR (LOW) | = | 0.0015406 M/KM | TILT DISTANCE (LOW) | = | 4.6722664 MM |
| IMAGE MOTION COMPENSATION (V/H) | = | 0.0368117 RAD/SEC | SWING ANGLE | = | 349.0404854 DEG |
| EMISSION ANGLE | = | 3.4422683 DEG | INCIDENCE ANGLE | = | 68.4417105 DEG |
| PHASE ANGLE | = | 67.8995972 DEG | NORTH DEVIATION ANGLE | = | 339.0785828 DEG |
| TILT ANGLE | = | 3.3424675 DEG | RESOLUTION CONSTANT | = | 1.1268444 MTR |
| TILT AZIMUTH | = | 189.9434720 DEG | SUN AZIMUTH AT PRINCIPAL GND PT | = | 90.2055836 DEG |
| SUN ANGLE AT NADIR | = | 68.4248610 DEG | SUN ARC AT NADIR | = | 2075.6950989 KM |
| LONGITUDE DISTANCE TO TARGET | = | 0.0280814 DEG | LATITUDE DISTANCE TO TARGET | = | 0.0147725 DEG |
| LONGITUDE ARC LENGTH TO TARGET | = | 0.8518608 KM | LATITUDE ARC LENGTH TO TARGET | = | 0.4481288 KM |
| FORWARD OVERLAP RATIO | = | 6.3946708 PCT | SIDE OVERLAP RATIO | = | 0. PCT |
| TIME BETWEEN PHOTOS | = | 2.3000479 SEC | ALPHA | = | 0.5020622 DEG. |

| | X | Y | Z | MAGNITUDE (KM) |
|---|---|---|---|---|
| DIRECTION COSINES TO TARGET | -0.80844171 | 0.58658520 | 0.04837155 | 51.84651613 |
| CAMERA AXIS | -0.80563806 | 0.59240792 | -0.00042056 | 51.92831421 |
| C1 | -0.73036184 | 0.66667286 | 0.14872415 | 52.30990601 |
| C2 | -0.80483322 | 0.56516218 | -0.18120484 | 53.43299866 |
| C3 | -0.85398507 | 0.49834119 | -0.14955121 | 53.37716675 |
| C4 | -0.77951369 | 0.59985186 | 0.18037777 | 52.25645447 |

| | X | Y | Z | X DOT | Y DOT | Z DOT |
|---|---|---|---|---|---|---|
| STATE VECTOR (1950.0) | -190.7347317 | -1603.7770538 | -771.5953217 | 1.7908152 | 0.0611008 | -0.6662766 |

LONG -36.1359 DEG
LATI -2.9324 DEG

LONG -36.6105 DEG
LATI -4.2570 DEG

* 42.67398 KM *
(1) (2)

LOW RESOLUTION

34.98859 KM 36.72533 KM

(4) (3)
* 42.33528 KM *

LONG -37.2164 DEG
LATI -2.5256 DEG

LONG -37.7419 DEG
LATI -3.8189 DEG

LONG -36.7417 DEG
LATI -3.1089 DEG

LONG -36.9603 DEG
LATI -3.6856 DEG

* 18.73339 KM *
(1) (2)

HIGH RESOLUTION

4.64230 KM 4.74194 KM

(4) (3)
* 18.68400 KM *

LONG -36.8850 DEG
LATI -3.0546 DEG

LONG -37.1065 DEG
LATI -3.6294 DEG

LOW RESOLUTION 176

| INDEX | LONGITUDE | LATITUDE |
|---|---|---|
| 1 | -36.1358666 | -2.9323513 |
| 2 | -36.1809492 | -3.0567418 |
| 3 | -36.2242217 | -3.1764136 |
| 4 | -36.2662106 | -3.2928119 |
| 5 | -36.3073964 | -3.4072313 |
| 6 | -36.3482170 | -3.5208839 |
| 7 | -36.3890958 | -3.6349463 |
| 8 | -36.4304595 | -3.7506131 |
| 9 | -36.4727554 | -3.8691501 |
| 10 | -36.5164685 | -3.9919484 |
| 11 | -36.5621557 | -4.1206001 |
| 12 | -36.6104722 | -4.2569879 |
| 13 | -36.7200971 | -4.2140362 |
| 14 | -36.8257976 | -4.1727247 |
| 15 | -36.9285474 | -4.1326631 |
| 16 | -37.0292211 | -4.0935005 |
| 17 | -37.1286345 | -4.0549193 |
| 18 | -37.2275491 | -4.0166173 |
| 19 | -37.3267236 | -3.9783042 |
| 20 | -37.4269223 | -3.9396855 |
| 21 | -37.5289311 | -3.9004606 |
| 22 | -37.6336074 | -3.8603076 |
| 23 | -37.7418966 | -3.8188731 |
| 24 | -37.6873269 | -3.6861711 |
| 25 | -37.6359501 | -3.5608986 |
| 26 | -37.5870013 | -3.4412371 |
| 27 | -37.5398321 | -3.3256481 |
| 28 | -37.4938822 | -3.2127809 |
| 29 | -37.4486456 | -3.1014079 |
| 30 | -37.4036450 | -2.9903643 |
| 31 | -37.3584156 | -2.8785003 |
| 32 | -37.3124824 | -2.7646309 |
| 33 | -37.2653370 | -2.6474837 |
| 34 | -37.2164192 | -2.5256383 |
| 35 | -37.1132836 | -2.5648880 |
| 36 | -37.0135183 | -2.6027690 |
| 37 | -36.9162359 | -2.6396273 |
| 38 | -36.8206272 | -2.6757709 |
| 39 | -36.7259402 | -2.7114886 |
| 40 | -36.6314545 | -2.7470551 |
| 41 | -36.5364537 | -2.7827385 |
| 42 | -36.4402027 | -2.8188122 |
| 43 | -36.3419299 | -2.8555620 |
| 44 | -36.2407951 | -2.8932954 |

HIGH RESOLUTION 176

| INDEX | LONGITUDE | LATITUDE |
|---|---|---|
| 1 | -36.7416835 | -3.1089424 |
| 2 | -36.7614980 | -3.1611959 |
| 3 | -36.7811928 | -3.2131395 |
| 4 | -36.8008127 | -3.2648867 |
| 5 | -36.8204017 | -3.3165537 |
| 6 | -36.8400306 | -3.3682522 |
| 7 | -36.8596549 | -3.4200959 |
| 8 | -36.8794041 | -3.4721975 |
| 9 | -36.8992972 | -3.5246764 |
| 10 | -36.9193745 | -3.5776505 |
| 11 | -36.9396873 | -3.6312461 |
| 12 | -36.9602838 | -3.6855922 |
| 13 | -36.9735994 | -3.6804755 |
| 14 | -36.9869046 | -3.6753615 |
| 15 | -37.0001993 | -3.6702542 |
| 16 | -37.0134878 | -3.6651478 |
| 17 | -37.0267725 | -3.6600465 |
| 18 | -37.0400500 | -3.6549460 |
| 19 | -37.0533314 | -3.6498473 |
| 20 | -37.0666094 | -3.6447485 |
| 21 | -37.0798907 | -3.6396498 |
| 22 | -37.0931754 | -3.6345493 |
| 23 | -37.1064672 | -3.6294472 |
| 24 | -37.0855737 | -3.5752812 |
| 25 | -37.0649700 | -3.5218623 |
| 26 | -37.0446095 | -3.4690590 |
| 27 | -37.0244431 | -3.4167483 |
| 28 | -37.0044241 | -3.3648098 |
| 29 | -36.9845104 | -3.3131292 |
| 30 | -36.9646516 | -3.2615894 |
| 31 | -36.9448137 | -3.2100796 |
| 32 | -36.9249444 | -3.1584877 |
| 33 | -36.9050035 | -3.1066987 |
| 34 | -36.8849502 | -3.0545997 |
| 35 | -36.8719254 | -3.0595422 |
| 36 | -36.8589067 | -3.0644839 |
| 37 | -36.8458920 | -3.0694229 |
| 38 | -36.8328772 | -3.0743594 |
| 39 | -36.8198652 | -3.0792968 |
| 40 | -36.8068504 | -3.0842333 |
| 41 | -36.7938323 | -3.0891707 |
| 42 | -36.7808070 | -3.0941106 |
| 43 | -36.7677751 | -3.0990514 |
| 44 | -36.7547359 | -3.1039956 |

**********
* PHOTO FRAME NUMBER 5 OF 8 *
********** **FRAME 177**

| | YEAR | MONTH | DAY | HOUR | MINUTE | SECOND |
|---|---|---|---|---|---|---|
| GMT | 67 | 2 | 21 | 22 | 28 | 8.200 |

| | | | | | |
|---|---|---|---|---|---|
| LONGITUDE OF NADIR POINT | = | -36.7731972 DEG | LATITUDE OF NADIR POINT | = | -3.3175227 DEG |
| LONG OF CAMERA AXIS INTERSECT | = | -36.7865305 DEG | LATI OF CAMERA AXIS INTERSECT | = | -3.4174885 DEG |
| SPACECRAFT RADIUS | = | 1790.0245056 KM | SPACECRAFT ALTITUDE | = | 51.9345093 KM |
| MEAN ALTITUDE RATE | = | 0.0428141 KM/SEC | TIME FROM PERIAPSIS | = | 83.5409307 SEC |
| HORIZONTAL VELOCITY | = | 1.9111639 KM/SEC | TRUE ANOMALY | = | 5.1172949 DEG |
| SCALE FACTOR (HIGH) | = | 0.0117246 M/KM | TILT DISTANCE (HIGH) | = | 35.9322782 MM |
| SCALE FACTOR (LOW) | = | 0.0015377 M/KM | TILT DISTANCE (LOW) | = | 4.7124299 MM |
| IMAGE MOTION COMPENSATION (V/H) | = | 0.0367409 RAD/SEC | SWING ANGLE | = | 346.6868553 DEG |
| EMISSION ANGLE | = | 3.4719867 DEG | INCIDENCE ANGLE | = | 68.3058081 DEG |
| PHASE ANGLE | = | 67.8995981 DEG | NORTH DEVIATION ANGLE | = | 339.0861778 DEG |
| TILT ANGLE | = | 3.3711338 DEG | RESOLUTION CONSTANT | = | 1.1289907 MTR |
| TILT AZIMUTH | = | 187.5863190 DEG | SUN AZIMUTH AT PRINCIPAL GND PT | = | 90.1775160 DEG |
| SUN ANGLE AT NADIR | = | 68.2928371 DEG | SUN ARC AT NADIR | = | 2071.6900940 KM |
| LONGITUDE DISTANCE TO TARGET | = | 0.1598029 DEG | LATITUDE DISTANCE TO TARGET | = | -0.0345227 DEG |
| LONGITUDE ARC LENGTH TO TARGET | = | 4.8476842 KM | LATITUDE ARC LENGTH TO TARGET | = | -1.0472600 KM |
| FORWARD OVERLAP RATIO | = | 6.5319371 PCT | SIDE OVERLAP RATIO | = | 0. PCT |
| TIME BETWEEN PHOTOS | = | 2.3000479 SEC | ALPHA | = | 0.3647519 DEG. |

| | X | Y | Z | MAGNITUDE (KM) |
|---|---|---|---|---|
| DIRECTION COSINES TO TARGET | -0.85065994 | 0.51995188 | 0.07763830 | 52.17700434 |
| CAMERA AXIS | -0.80563468 | 0.59241250 | -0.00042049 | 52.02722168 |
| C1 | -0.73035805 | 0.66667700 | 0.14872422 | 52.41567993 |
| C2 | -0.80483001 | 0.56516678 | -0.18120477 | 53.54090881 |
| C3 | -0.85398224 | 0.49834607 | -0.14955114 | 53.47259521 |
| C4 | -0.77951027 | 0.59985629 | 0.18037784 | 52.35023499 |

| | X | Y | Z | X DOT | Y DOT | Z DOT |
|---|---|---|---|---|---|---|
| STATE VECTOR (1950.0) | -186.6136189 | -1603.6328278 | -773.1266785 | 1.7911869 | 0.0642559 | -0.6647567 |

LONG -35.9981 DEG
LATI -2.9821 DEG

LONG -36.4738 DEG
LATI -4.3105 DEG

* 42.79354 KM *
(1) (2)

LONG -36.6057 DEG
LATI -3.1594 DEG

LONG -36.8247 DEG
LATI -3.7372 DEG

* 18.74118 KM *
(1) (2)

LOW RESOLUTION

35.05724 KM 36.79719 KM

HIGH RESOLUTION

4.65132 KM 4.75113 KM

(4) (3)
* 42.37896 KM *

(4) (3)
* 18.71744 KM *

LONG -37.0812 DEG
LATI -2.5757 DEG

LONG -37.6070 DEG
LATI -3.8703 DEG

LONG -36.7493 DEG
LATI -3.1050 DEG

LONG -36.9711 DEG
LATI -3.6809 DEG

LOW RESOLUTION 177

| INDEX | LONGITUDE | LATITUDE |
|---|---|---|
| 1 | -35.9980536 | -2.9820793 |
| 2 | -36.0432491 | -3.1068216 |
| 3 | -36.0866275 | -3.2268315 |
| 4 | -36.1287222 | -3.3435585 |
| 5 | -36.1700072 | -3.4583032 |
| 6 | -36.2109265 | -3.5722794 |
| 7 | -36.2519011 | -3.6866671 |
| 8 | -36.2933602 | -3.8026659 |
| 9 | -36.3357553 | -3.9215420 |
| 10 | -36.3795710 | -4.0446954 |
| 11 | -36.4253674 | -4.1737193 |
| 12 | -36.4737935 | -4.3105067 |
| 13 | -36.5837798 | -4.2672810 |
| 14 | -36.6897879 | -4.2257201 |
| 15 | -36.7928009 | -4.1854305 |
| 16 | -36.8937030 | -4.1460588 |
| 17 | -36.9933043 | -4.1072821 |
| 18 | -37.0923762 | -4.0687991 |
| 19 | -37.1916771 | -4.0303161 |
| 20 | -37.2919683 | -3.9915394 |
| 21 | -37.3940420 | -3.9521660 |
| 22 | -37.4987488 | -3.9118738 |
| 23 | -37.6070309 | -3.8703113 |
| 24 | -37.5524273 | -3.7374692 |
| 25 | -37.5010195 | -3.6120627 |
| 26 | -37.4520402 | -3.4922740 |
| 27 | -37.4048371 | -3.3765595 |
| 28 | -37.3588562 | -3.2635702 |
| 29 | -37.3135891 | -3.1520751 |
| 30 | -37.2685542 | -3.0409086 |
| 31 | -37.2232904 | -2.9289200 |
| 32 | -37.1773233 | -2.8149233 |
| 33 | -37.1301403 | -2.6976446 |
| 34 | -37.0811849 | -2.5756609 |
| 35 | -36.9779673 | -2.6148235 |
| 36 | -36.8780894 | -2.6526328 |
| 37 | -36.7806635 | -2.6894313 |
| 38 | -36.6848874 | -2.7255272 |
| 39 | -36.5900092 | -2.7612089 |
| 40 | -36.4952984 | -2.7967490 |
| 41 | -36.4000411 | -2.8324179 |
| 42 | -36.3035030 | -2.8684864 |
| 43 | -36.2049026 | -2.9052414 |
| 44 | -36.1034026 | -2.9429919 |

HIGH RESOLUTION 177

| INDEX | LONGITUDE | LATITUDE |
|---|---|---|
| 1 | -36.6057014 | -3.1593663 |
| 2 | -36.6255465 | -3.2117265 |
| 3 | -36.6452756 | -3.2637777 |
| 4 | -36.6649294 | -3.3156325 |
| 5 | -36.6845527 | -3.3674061 |
| 6 | -36.7041860 | -3.4192123 |
| 7 | -36.7238708 | -3.4711627 |
| 8 | -36.7436543 | -3.5233735 |
| 9 | -36.7635813 | -3.5759608 |
| 10 | -36.7836928 | -3.6290451 |
| 11 | -36.8040400 | -3.6827509 |
| 12 | -36.8246703 | -3.7372105 |
| 13 | -36.8380132 | -3.7320759 |
| 14 | -36.8513460 | -3.7269464 |
| 15 | -36.8646646 | -3.7218221 |
| 16 | -36.8779802 | -3.7166995 |
| 17 | -36.8912888 | -3.7115811 |
| 18 | -36.9045906 | -3.7064644 |
| 19 | -36.9178958 | -3.7013486 |
| 20 | -36.9311976 | -3.6962345 |
| 21 | -36.9444995 | -3.6911204 |
| 22 | -36.9578080 | -3.6860054 |
| 23 | -36.9711199 | -3.6808888 |
| 24 | -36.9501958 | -3.6266221 |
| 25 | -36.9295616 | -3.5731041 |
| 26 | -36.9091702 | -3.5202043 |
| 27 | -36.8889766 | -3.4677971 |
| 28 | -36.8689265 | -3.4157639 |
| 29 | -36.8489823 | -3.3639868 |
| 30 | -36.8290963 | -3.3123523 |
| 31 | -36.8092275 | -3.2607485 |
| 32 | -36.7893310 | -3.2090610 |
| 33 | -36.7693596 | -3.1571763 |
| 34 | -36.7492752 | -3.1049800 |
| 35 | -36.7362266 | -3.1099260 |
| 36 | -36.7231808 | -3.1148702 |
| 37 | -36.7101383 | -3.1198126 |
| 38 | -36.6970997 | -3.1247534 |
| 39 | -36.6840572 | -3.1296934 |
| 40 | -36.6710153 | -3.1346350 |
| 41 | -36.6579661 | -3.1395758 |
| 42 | -36.6449137 | -3.1445192 |
| 43 | -36.6318541 | -3.1494651 |
| 44 | -36.6187811 | -3.1544135 |

PHOTO FRAME NUMBER 6 OF 8

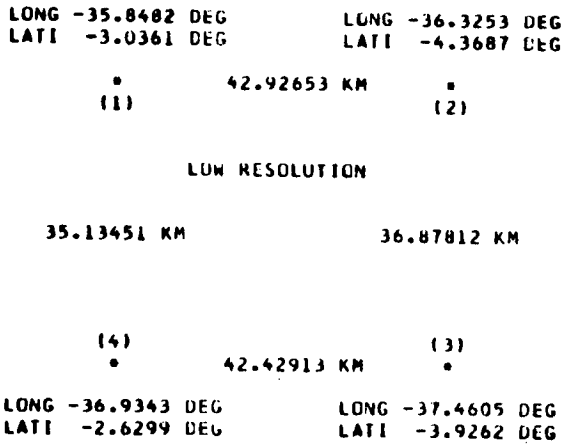
## FRAME 178

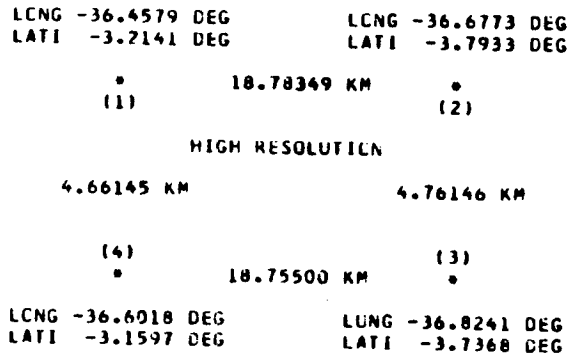
| | YEAR | MONTH | DAY | HOUR | MINUTE | SECOND |
|---|---|---|---|---|---|---|
| GMT | 67 | 2 | 21 | 22 | 28 | 10.699 |

| | | | | | |
|---|---|---|---|---|---|
| LONGITUDE OF NADIR POINT | = | -36.6300850 | DEG | LATITUDE OF NADIR POINT = | -3.3710535 DEG |
| LONG OF CAMERA AXIS INTERSECT | = | -36.6391320 | DEG | LATI OF CAMERA AXIS INTERSECT = | -3.4728378 DEG |
| SPACECRAFT RADIUS | = | 1790.1331329 | KM | SPACECRAFT ALTITUDE = | 52.0431366 KM |
| MEAN ALTITUDE RATE | = | 0.0440890 | KM/SEC | TIME FROM PERIAPSIS = | 86.0387897 SEC |
| HORIZONTAL VELOCITY | = | 1.9110484 | KM/SEC | TRUE ANOMALY = | 5.2700893 DEG |
| SCALE FACTOR (HIGH) | = | 0.0116997 | M/KM | TILT DISTANCE (HIGH) = | 36.3318253 MM |
| SCALE FACTOR (LOW) | = | 0.0015344 | M/KM | TILT DISTANCE (LOW) = | 4.7648296 MM |
| IMAGE MOTION COMPENSATION (V/H) | = | 0.0366616 | RAD/SEC | SWING ANGLE = | 344.1796265 DEG |
| EMISSION ANGLE | = | 3.5107372 | DEG | INCIDENCE ANGLE = | 68.1581726 DEG |
| PHASE ANGLE | = | 67.8995981 | DEG | NORTH DEVIATION ANGLE = | 339.0947037 DEG |
| TILT ANGLE | = | 3.4085311 | DEG | RESOLUTION CONSTANT = | 1.1313976 MTR |
| TILT AZIMUTH | = | 185.0748825 | DEG | SUN AZIMUTH AT PRINCIPAL GND PT = | 90.1467018 DEG |
| SUN ANGLE AT NADIR | = | 68.1494293 | DEG | SUN ARC AT NADIR = | 2067.3397522 KM |
| LONGITUDE DISTANCE TO TARGET | = | 0.3029151 | DEG | LATITUDE DISTANCE TO TARGET = | -0.0880535 DEG |
| LONGITUDE ARC LENGTH TO TARGET | = | 9.1890485 | KM | LATITUDE ARC LENGTH TO TARGET = | -2.6711365 KM |
| FORWARD OVERLAP RATIO | = | -1.3391275 | PCT | SIDE OVERLAP RATIO = | 0. PCT |
| TIME BETWEEN PHOTOS | = | 2.4996042 | SEC | ALPHA = | 0.2155529 DEG. |

| DIRECTION COSINES TO TARGET | X | Y | Z | MAGNITUDE (KM) |
|---|---|---|---|---|
| CAMERA AXIS | -0.88897704 | 0.44499105 | 0.10817943 | 52.93874073 |
| C1 | -0.80563106 | 0.59241743 | -0.00042040 | 52.13813782 |
| C2 | -0.73035397 | 0.66668145 | 0.14872430 | 52.53407288 |
| C3 | -0.80482657 | 0.56517171 | -0.18120468 | 53.66171265 |
| C4 | -0.85397920 | 0.49835130 | -0.14955106 | 53.57975769 |
| | -0.77950661 | 0.59986103 | 0.18037792 | 52.45556641 |

| STATE VECTOR (1950.0) | X | Y | Z | X DOT | Y DOT | Z DOT |
|---|---|---|---|---|---|---|
| | -182.1351547 | -1603.4679108 | -774.7865067 | 1.7915816 | 0.0676830 | -0.6631023 |



LOW RESOLUTION 178

| INDEX | LONGITUDE | LATITUDE |
|---|---|---|
| 1 | -35.8482471 | -3.0360617 |
| 2 | -35.8935657 | -3.1611959 |
| 3 | -35.9370637 | -3.2815823 |
| 4 | -35.9792705 | -3.3986765 |
| 5 | -36.0206652 | -3.5137822 |
| 6 | -36.0616941 | -3.6281170 |
| 7 | -36.1027775 | -3.7428659 |
| 8 | -36.1443462 | -3.8592327 |
| 9 | -36.1868505 | -3.9784887 |
| 10 | -36.2307820 | -4.1020340 |
| 11 | -36.2766981 | -4.2314746 |
| 12 | -36.3252506 | -4.3687059 |
| 13 | -36.4356332 | -4.3251771 |
| 14 | -36.5419860 | -4.2833422 |
| 15 | -36.6452928 | -4.2427999 |
| 16 | -36.7464442 | -4.2031959 |
| 17 | -36.8462605 | -4.1642041 |
| 18 | -36.9455137 | -4.1255230 |
| 19 | -37.0449576 | -4.0868530 |
| 20 | -37.1453581 | -4.0479021 |
| 21 | -37.2475104 | -4.0083639 |
| 22 | -37.3522582 | -3.9679189 |
| 23 | -37.4605370 | -3.9262129 |
| 24 | -37.4058957 | -3.7932095 |
| 25 | -37.3544507 | -3.6676510 |
| 26 | -37.3054338 | -3.5477138 |
| 27 | -37.2581964 | -3.4318575 |
| 28 | -37.2121778 | -3.3187265 |
| 29 | -37.1668696 | -3.2070914 |
| 30 | -37.1218009 | -3.0957849 |
| 31 | -37.0764995 | -2.9836545 |
| 32 | -37.0304880 | -2.8695118 |
| 33 | -36.9832640 | -2.7520829 |
| 34 | -36.9342642 | -2.6299404 |
| 35 | -36.8309474 | -2.6690108 |
| 36 | -36.7309399 | -2.7067433 |
| 37 | -36.6333537 | -2.7434795 |
| 38 | -36.5373893 | -2.7795267 |
| 39 | -36.4422855 | -2.8151709 |
| 40 | -36.3473258 | -2.8506853 |
| 41 | -36.2517881 | -2.8863380 |
| 42 | -36.1549258 | -2.9224031 |
| 43 | -36.0559669 | -2.9591675 |
| 44 | -35.9540572 | -2.9969401 |

HIGH RESOLUTION 178

| INDEX | LONGITUDE | LATITUDE |
|---|---|---|
| 1 | -36.4579234 | -3.2141171 |
| 2 | -36.4778094 | -3.2666003 |
| 3 | -36.4975796 | -3.3187701 |
| 4 | -36.5172710 | -3.3707452 |
| 5 | -36.5369282 | -3.4226402 |
| 6 | -36.5565991 | -3.4745658 |
| 7 | -36.5763249 | -3.5266358 |
| 8 | -36.5961461 | -3.5789678 |
| 9 | -36.6161075 | -3.6316764 |
| 10 | -36.6362562 | -3.6848836 |
| 11 | -36.6566443 | -3.7387149 |
| 12 | -36.6773124 | -3.7933009 |
| 13 | -36.6906862 | -3.7881466 |
| 14 | -36.7040458 | -3.7829984 |
| 15 | -36.7173953 | -3.7778544 |
| 16 | -36.7307382 | -3.7727147 |
| 17 | -36.7440743 | -3.7675775 |
| 18 | -36.7574067 | -3.7624429 |
| 19 | -36.7707357 | -3.7573101 |
| 20 | -36.7840614 | -3.7521780 |
| 21 | -36.7973909 | -3.7470468 |
| 22 | -36.8107233 | -3.7419148 |
| 23 | -36.8240628 | -3.7367811 |
| 24 | -36.8031006 | -3.6824025 |
| 25 | -36.7824326 | -3.6287744 |
| 26 | -36.7620101 | -3.5757653 |
| 27 | -36.7417793 | -3.5232497 |
| 28 | -36.7217021 | -3.4711089 |
| 29 | -36.7017202 | -3.4192259 |
| 30 | -36.6818032 | -3.3674838 |
| 31 | -36.6619000 | -3.3157733 |
| 32 | -36.6419697 | -3.2639792 |
| 33 | -36.6219673 | -3.2119860 |
| 34 | -36.6018457 | -3.1596822 |
| 35 | -36.5887694 | -3.1646332 |
| 36 | -36.5756931 | -3.1695800 |
| 37 | -36.5626235 | -3.1745259 |
| 38 | -36.5495539 | -3.1794701 |
| 39 | -36.5364809 | -3.1844160 |
| 40 | -36.5234079 | -3.1893602 |
| 41 | -36.5103283 | -3.1943070 |
| 42 | -36.4972415 | -3.1992546 |
| 43 | -36.4841480 | -3.2042056 |
| 44 | -36.4710407 | -3.2091592 |

**********
* PHOTO FRAME NUMBER 7 OF 8 *
********** **FRAME 179**

| | YEAR | MONTH | DAY | HOUR | MINUTE | SECOND |
|---|---|---|---|---|---|---|
| GMT | 67 | 2 | 21 | 22 | 28 | 12.999 |

| | | | | | |
|---|---|---|---|---|---|
| LONGITUDE OF NADIR POINT | = | -36.4984283 DEG | LATITUDE OF NADIR POINT | = | -3.4202769 DEG |
| LONG OF CAMERA AXIS INTERSECT | = | -36.5035186 DEG | LATI OF CAMERA AXIS INTERSECT | = | -3.5237449 DEG |
| SPACECRAFT RADIUS | = | 1790.2358856 KM | SPACECRAFT ALTITUDE | = | 52.1458893 KM |
| MEAN ALTITUDE RATE | = | 0.0452615 KM/SEC | TIME FROM PERIAPSIS | = | 88.3368692 SEC |
| HORIZONTAL VELOCITY | = | 1.9109391 KM/SEC | TRUE ANOMALY | = | 5.4106459 DEG |
| SCALE FACTOR (HIGH) | = | 0.0116761 M/KM | TILT DISTANCE (HIGH) | = | 36.7597690 MM |
| SCALE FACTOR (LOW) | = | 0.0015313 M/KM | TILT DISTANCE (LOW) | = | 4.8209533 MM |
| IMAGE MOTION COMPENSATION (V/H) | = | 0.0365867 RAD/SEC | SWING ANGLE | = | 341.9248772 DEG |
| EMISSION ANGLE | = | 3.5521808 DEG | INCIDENCE ANGLE | = | 68.0223694 DEG |
| PHASE ANGLE | = | 67.8996000 DEG | NORTH DEVIATION ANGLE | = | 339.1028023 DEG |
| TILT ANGLE | = | 3.4485830 DEG | RESOLUTION CONSTANT | = | 1.1336830 MTR |
| TILT AZIMUTH | = | 182.8164158 DEG | SUN AZIMUTH AT PRINCIPAL GNC PT | = | 90.1180562 DEG |
| SUN ANGLE AT NADIR | = | 68.0175295 DEG | SUN ARC AT NADIR | = | 2063.3385010 KM |
| LONGITUDE DISTANCE TO TARGET | = | 0.4345717 DEG | LATITUDE DISTANCE TO TARGET | = | -0.1372769 DEG |
| LONGITUDE ARC LENGTH TO TARGET | = | 13.1829047 KM | LATITUDE ARC LENGTH TO TARGET | = | -4.1643502 KM |
| FORWARD OVERLAP RATIO | = | 6.9575933 PCT | SIDE OVERLAP RATIO | = | 0. PCT |
| TIME BETWEEN PHOTOS | = | 2.3000479 SEC | ALPHA | = | 0.0782737 DEG. |

| | X | Y | Z | MAGNITUDE (KM) |
|---|---|---|---|---|
| DIRECTION COSINES TO TARGET | -0.91706447 | 0.37533031 | 0.13461022 | 53.99487829 |
| CAMERA AXIS | -0.80562767 | 0.59242204 | -0.00042032 | 52.24331665 |
| C1 | -0.73035014 | 0.66668563 | 0.14872438 | 52.64620972 |
| C2 | -0.80482334 | 0.56517634 | -0.18120462 | 53.77615356 |
| C3 | -0.85397635 | 0.49835620 | -0.14955099 | 53.68157959 |
| C4 | -0.77950316 | 0.59986549 | 0.18037800 | 52.55561829 |

| | X | Y | Z | X DOT | Y DOT | Z DOT |
|---|---|---|---|---|---|---|
| STATE VECTOR (1950.0) | -178.0141029 | -1603.3086090 | -776.3098907 | 1.7919362 | 0.0708350 | -0.6615774 |

LONG -35.7104 DEG
LATI -3.0857 DEG

(1) •

43.05173 KM

LONG -36.1886 DEG
LATI -4.4223 DEG

• (2)

LOW RESOLUTION

35.20807 KM

36.95520 KM

(4) •

42.47778 KM

• (3)

LONG -36.7991 DEG
LATI -2.6798 DEG

LONG -37.3258 DEG
LATI -3.9777 DEG

LONG -36.3220 DEG
LATI -3.2645 DEG

(1) •

18.82355 KM

LONG -36.5417 DEG
LATI -3.8449 DEG

• (2)

HIGH RESOLUTION

4.67109 KM

4.77130 KM

(4) •

18.79069 KM

• (3)

LONG -36.4662 DEG
LATI -3.2100 DEG

LONG -36.6888 DEG
LATI -3.7882 DEG

LOW RESOLUTION 179

| INDEX | LONGITUDE | LATITUDE |
|---|---|---|
| 1 | -35.7103591 | -3.0856830 |
| 2 | -35.7557969 | -3.2111852 |
| 3 | -35.7994046 | -3.3319267 |
| 4 | -35.8417177 | -3.4493650 |
| 5 | -35.8832178 | -3.5648106 |
| 6 | -35.9243493 | -3.6794835 |
| 7 | -35.9655352 | -3.7945738 |
| 8 | -36.0072060 | -3.9112873 |
| 9 | -36.0498161 | -4.0308984 |
| 10 | -36.0938540 | -4.1548159 |
| 11 | -36.1398792 | -4.2846476 |
| 12 | -36.1885509 | -4.4222955 |
| 13 | -36.2993131 | -4.3784841 |
| 14 | -36.4059868 | -4.3363922 |
| 15 | -36.5095735 | -4.2956160 |
| 16 | -36.6109676 | -4.2557952 |
| 17 | -36.7109852 | -4.2166035 |
| 18 | -36.8104091 | -4.1777338 |
| 19 | -36.9099932 | -4.1388905 |
| 20 | -37.0105028 | -4.0997766 |
| 21 | -37.1127267 | -4.0600864 |
| 22 | -37.2175193 | -4.0194971 |
| 23 | -37.3258085 | -3.9776554 |
| 24 | -37.2711291 | -3.8444974 |
| 25 | -37.2196465 | -3.7187895 |
| 26 | -37.1705890 | -3.5987113 |
| 27 | -37.1233139 | -3.4827151 |
| 28 | -37.0772610 | -3.3694484 |
| 29 | -37.0319190 | -3.2576783 |
| 30 | -36.9868088 | -3.1462352 |
| 31 | -36.9414701 | -3.0339674 |
| 32 | -36.8954210 | -2.9196838 |
| 33 | -36.8481560 | -2.8021090 |
| 34 | -36.7991085 | -2.6798153 |
| 35 | -36.6956959 | -2.7188020 |
| 36 | -36.5955620 | -2.7564662 |
| 37 | -36.4978256 | -2.7931469 |
| 38 | -36.4016767 | -2.8291505 |
| 39 | -36.3063650 | -2.8647614 |
| 40 | -36.2111692 | -2.9002545 |
| 41 | -36.1153588 | -2.9358944 |
| 42 | -36.0181994 | -2.9719587 |
| 43 | -35.9188986 | -3.0087324 |
| 44 | -35.8166027 | -3.0465256 |

HIGH RESOLUTION 179

| INDEX | LONGITUDE | LATITUDE |
|---|---|---|
| 1 | -36.3219514 | -3.2644590 |
| 2 | -36.3418751 | -3.3170557 |
| 3 | -36.3616791 | -3.3693416 |
| 4 | -36.3814049 | -3.4214304 |
| 5 | -36.4010997 | -3.4734372 |
| 6 | -36.4208050 | -3.5254764 |
| 7 | -36.4405646 | -3.5776607 |
| 8 | -36.4604235 | -3.6301080 |
| 9 | -36.4804220 | -3.6829318 |
| 10 | -36.5006089 | -3.7362551 |
| 11 | -36.5210276 | -3.7902042 |
| 12 | -36.5417333 | -3.8449107 |
| 13 | -36.5551376 | -3.8397376 |
| 14 | -36.5685248 | -3.8345723 |
| 15 | -36.5819049 | -3.8294104 |
| 16 | -36.5952754 | -3.8242527 |
| 17 | -36.6086349 | -3.8190985 |
| 18 | -36.6219950 | -3.8139477 |
| 19 | -36.6353478 | -3.8087986 |
| 20 | -36.6487007 | -3.8036495 |
| 21 | -36.6620541 | -3.7985021 |
| 22 | -36.6754103 | -3.7933538 |
| 23 | -36.6887703 | -3.7882056 |
| 24 | -36.6677775 | -3.7337211 |
| 25 | -36.6470752 | -3.6799872 |
| 26 | -36.6266222 | -3.6268739 |
| 27 | -36.6063604 | -3.5742559 |
| 28 | -36.5862489 | -3.5220135 |
| 29 | -36.5662398 | -3.4700280 |
| 30 | -36.5462890 | -3.4181852 |
| 31 | -36.5263519 | -3.3663731 |
| 32 | -36.5063906 | -3.3144773 |
| 33 | -36.4863544 | -3.2623835 |
| 34 | -36.4662018 | -3.2099763 |
| 35 | -36.4530978 | -3.2149290 |
| 36 | -36.4399977 | -3.2198809 |
| 37 | -36.4268975 | -3.2248302 |
| 38 | -36.4137969 | -3.2297787 |
| 39 | -36.4006968 | -3.2347280 |
| 40 | -36.3875928 | -3.2396773 |
| 41 | -36.3744826 | -3.2446284 |
| 42 | -36.3613653 | -3.2495811 |
| 43 | -36.3482409 | -3.2545364 |
| 44 | -36.3351030 | -3.2594951 |

**********
* PHOTO FRAME NUMBER 8 OF 8 *
**********

## FRAME 180

| | YEAR | MONTH | DAY | HOUR | MINUTE | SECOND |
|---|---|---|---|---|---|---|
| GMT | 67 | 2 | 21 | 22 | 28 | 15.299 |

| | | | | | |
|---|---|---|---|---|---|
| LONGITUDE OF NADIR POINT | = | -36.3668175 | DEG | LATITUDE OF NADIR POINT | = -3.4694560 DEG |
| LONG OF CAMERA AXIS INTERSECT | = | -36.3679423 | DEG | LATI OF CAMERA AXIS INTERSECT | = -3.5746170 DEG |
| SPACECRAFT RADIUS | = | 1790.3412933 | KM | SPACECRAFT ALTITUDE | = 52.2512970 KM |
| MEAN ALTITUDE RATE | = | 0.3464330 | KM/SEC | TIME FROM PERIAPSIS | = 90.6338930 SEC |
| HORIZONTAL VELOCITY | = | 1.9138271 | KM/SEC | TRUE ANOMALY | = 5.5511210 DEG |
| SCALE FACTOR (HIGH) | = | 0.0116520 | M/KM | TILT DISTANCE (HIGH) | = 37.2429986 MM |
| SCALE FACTOR (LOW) | = | 0.0015281 | M/KM | TILT DISTANCE (LOW) | = 4.8843277 MM |
| IMAGE MOTION COMPENSATION (V/H) | = | 0.0365097 | RAD/SEC | SWING ANGLE | = 339.7265892 DEG |
| EMISSION ANGLE | = | 3.5989730 | DEG | INCIDENCE ANGLE | = 67.8866434 DEG |
| PHASE ANGLE | = | 67.8996000 | DEG | NORTH DEVIATION ANGLE | = 339.1111374 DEG |
| TILT ANGLE | = | 3.4938052 | DEG | RESOLUTION CONSTANT | = 1.1360279 MTR |
| TILT AZIMUTH | = | 180.6140385 | DEG | SUN AZIMUTH AT PRINCIPAL GND PT | = 90.0891438 DEG |
| SUN ANGLE AT NADIR | = | 67.8857183 | DEG | SUN ARC AT NADIR | = 2059.3399658 KM |
| LONGITUDE DISTANCE TO TARGET | = | 0.5661826 | DEG | LATITUDE DISTANCE TO TARGET | = -0.1864560 DEG |
| LONGITUDE ARC LENGTH TO TARGET | = | 17.1753721 | KM | LATITUDE ARC LENGTH TO TARGET | = -5.6562159 KM |
| FORWARD OVERLAP RATIO | = | 7.1870912 | PCT | SIDE OVERLAP RATIO | = 0. PCT |
| TIME BETWEEN PHOTOS | = | 2.3000479 | SEC | ALPHA | = -0.0589562 DEG. |

| DIRECTION COSINES TO TARGET | X | Y | Z | MAGNITUDE (KM) |
|---|---|---|---|---|
| CAMERA AXIS | -0.93848470 | 0.30649593 | 0.15908086 | 55.37107277 |
| C1 | -0.80562438 | 0.59242652 | -0.00042025 | 52.35151672 |
| C2 | -0.73034643 | 0.66668966 | 0.14872447 | 52.76139832 |
| C3 | -0.80482020 | 0.56518082 | -0.18120454 | 53.89369202 |
| C4 | -0.85397358 | 0.49836095 | -0.14955092 | 53.78646851 |
| | -0.77949983 | 0.59986980 | 0.18037808 | 52.65869141 |

| | X | Y | Z | X DOT | Y DOT | Z DOT |
|---|---|---|---|---|---|---|
| STATE VECTOR (1950.0) | -173.8940487 | -1603.1421509 | -777.8290939 | 1.7922825 | 0.0739848 | -0.6600503 |

LONG -35.5725 DEG
LATI -3.1352 DEG

LONG -36.0519 DEG
LATI -4.4759 DEG

* (1) 43.17964 KM * (2)

LOW RESOLUTION

35.28397 KM 37.03478 KM

(4) * 42.52881 KM * (3)

LONG -36.6640 DEG
LATI -2.7296 DEG

LONG -37.1912 DEG
LATI -4.0291 DEG

LONG -36.1860 DEG
LATI -3.3147 DEG

LONG -36.4062 DEG
LATI -3.8965 DEG

* (1) 18.86472 KM * (2)

HIGH RESOLUTION

4.68103 KM 4.78143 KM

(4) * 18.82745 KM * (3)

LONG -36.3306 DEG
LATI -3.2602 DEG

LONG -36.5535 DEG
LATI -3.8396 DEG

LOW RESOLUTION 180

| INDEX | LONGITUDE | LATITUDE |
|---|---|---|
| 1 | -35.5724545 | -3.1352403 |
| 2 | -35.6180120 | -3.2611181 |
| 3 | -35.6617317 | -3.3822225 |
| 4 | -35.7041540 | -3.5000143 |
| 5 | -35.7457638 | -3.6158073 |
| 6 | -35.7869973 | -3.7308260 |
| 7 | -35.8282857 | -3.8462639 |
| 8 | -35.8700662 | -3.9633299 |
| 9 | -35.9127789 | -4.0833064 |
| 10 | -35.9569292 | -4.2076030 |
| 11 | -36.0030704 | -4.3378334 |
| 12 | -36.0518618 | -4.4759083 |
| 13 | -36.1030063 | -4.4318100 |
| 14 | -36.2700114 | -4.3894585 |
| 15 | -36.3738880 | -4.3484424 |
| 16 | -36.4755249 | -4.3084030 |
| 17 | -36.5757546 | -4.2690082 |
| 18 | -36.6753559 | -4.2299489 |
| 19 | -36.7750869 | -4.1909280 |
| 20 | -36.8757091 | -4.1516485 |
| 21 | -36.9780183 | -4.1118020 |
| 22 | -37.0828586 | -4.0710667 |
| 23 | -37.1911650 | -4.0290892 |
| 24 | -37.1364412 | -3.8957674 |
| 25 | -37.0849175 | -3.7699041 |
| 26 | -37.0358224 | -3.6496757 |
| 27 | -36.9885097 | -3.5335351 |
| 28 | -36.9424162 | -3.4201249 |
| 29 | -36.8970366 | -3.3082140 |
| 30 | -36.8518887 | -3.1966301 |
| 31 | -36.8065057 | -3.0842180 |
| 32 | -36.7604156 | -2.9697867 |
| 33 | -36.7131062 | -2.8520581 |
| 34 | -36.6640143 | -2.7296039 |
| 35 | -36.5604959 | -2.7685113 |
| 36 | -36.4602323 | -2.8061098 |
| 37 | -36.3623314 | -2.8427366 |
| 38 | -36.2659950 | -2.8786976 |
| 39 | -36.1704717 | -2.9142786 |
| 40 | -36.0750298 | -2.9497503 |
| 41 | -35.9789462 | -2.9853809 |
| 42 | -35.8814759 | -3.0214443 |
| 43 | -35.7818270 | -3.0582300 |
| 44 | -35.6791420 | -3.0960461 |

HIGH RESOLUTION 180

| INDEX | LONGITUDE | LATITUDE |
|---|---|---|
| 1 | -36.1860032 | -3.3147497 |
| 2 | -36.2059646 | -3.3674642 |
| 3 | -36.2258062 | -3.4198671 |
| 4 | -36.2455697 | -3.4720728 |
| 5 | -36.2653017 | -3.5241965 |
| 6 | -36.2850447 | -3.5763519 |
| 7 | -36.3048387 | -3.6286540 |
| 8 | -36.3247313 | -3.6812175 |
| 9 | -36.3447676 | -3.7341600 |
| 10 | -36.3649921 | -3.7876045 |
| 11 | -36.3854485 | -3.8416740 |
| 12 | -36.4061952 | -3.8965025 |
| 13 | -36.4196267 | -3.8913124 |
| 14 | -36.4330444 | -3.8861283 |
| 15 | -36.4464521 | -3.8809493 |
| 16 | -36.4598494 | -3.8757737 |
| 17 | -36.4732366 | -3.8706024 |
| 18 | -36.4866238 | -3.8654337 |
| 19 | -36.5000010 | -3.8602675 |
| 20 | -36.5133810 | -3.8551030 |
| 21 | -36.5267582 | -3.8499394 |
| 22 | -36.5401382 | -3.8447740 |
| 23 | -36.5535221 | -3.8396096 |
| 24 | -36.5324955 | -3.7850150 |
| 25 | -36.5117626 | -3.7311726 |
| 26 | -36.4912753 | -3.6779526 |
| 27 | -36.4709830 | -3.6252296 |
| 28 | -36.4508371 | -3.5728813 |
| 29 | -36.4307938 | -3.5207917 |
| 30 | -36.4108124 | -3.4688447 |
| 31 | -36.3908443 | -3.4169276 |
| 32 | -36.3708487 | -3.3649276 |
| 33 | -36.3507781 | -3.3127296 |
| 34 | -36.3305950 | -3.2602157 |
| 35 | -36.3174605 | -3.2651727 |
| 36 | -36.3043294 | -3.2701280 |
| 37 | -36.2912021 | -3.2750816 |
| 38 | -36.2780743 | -3.2800344 |
| 39 | -36.2649431 | -3.2849880 |
| 40 | -36.2518053 | -3.2899415 |
| 41 | -36.2386675 | -3.2948977 |
| 42 | -36.2255158 | -3.2998556 |
| 43 | -36.2123575 | -3.3048160 |
| 44 | -36.1991892 | -3.3097807 |

**********
* PHOTO FRAME NUMBER 1 OF 4 *
**********

## FRAME 181

| | YEAR | MONTH | DAY | HOUR | MINUTE | SECOND |
|---|---|---|---|---|---|---|
| GMT | 67 | 2 | 22 | 1 | 55 | 14.209 |

| | | | | | | |
|---|---|---|---|---|---|---|
| LONGITUDE OF NADIR POINT | = | -43.3342094 | DEG | LATITUDE OF NADIR POINT | = | -1.5845023 DEG |
| LONG OF CAMERA AXIS INTERSECT | = | -43.5404677 | DEG | LATI OF CAMERA AXIS INTERSECT | = | -2.1106693 DEG |
| SPACECRAFT RADIUS | = | 1788.8337555 | KM | SPACECRAFT ALTITUDE | = | 50.7437592 KM |
| MEAN ALTITUDE RATE | = | 0.0009265 | KM/SEC | TIME FROM PERIAPSIS | = | 1.8067901 SEC |
| HORIZONTAL VELOCITY | = | 1.9125735 | KM/SEC | TRUE ANOMALY | = | 0.1106824 DEG |
| SCALE FACTOR (HIGH) | = | 0.0113718 | M/KM | TILT DISTANCE (HIGH) | = | 235.7324524 MM |
| SCALE FACTOR (LOW) | = | 0.0014914 | M/KM | TILT DISTANCE (LOW) | = | 26.9813054 MM |
| IMAGE MOTION COMPENSATION (V/H) | = | 0.0356543 | RAD/SEC | SWING ANGLE | = | 0.4265460 DEG |
| EMISSION ANGLE | = | 19.2026343 | DEG | INCIDENCE ANGLE | = | 73.3197327 DEG |
| PHASE ANGLE | = | 67.5657701 | DEG | NORTH DEVIATION ANGLE | = | 337.8897133 DEG |
| TILT ANGLE | = | 18.6375179 | DEG | RESOLUTION CONSTANT | = | 1.1640158 MTR |
| TILT AZIMUTH | = | 201.3924770 | DEG | SUN AZIMUTH AT PRINCIPAL GND PT | = | 90.8559742 DEG |
| SUN ANGLE AT NADIR | = | 73.1221628 | DEG | SUN ARC AT NADIR | = | 2218.1896057 KM |
| LONGITUDE DISTANCE TO TARGET | = | 0.5327907 | DEG | LATITUDE DISTANCE TO TARGET | = | 0.7984577 DEG |
| LONGITUDE ARC LENGTH TO TARGET | = | 16.1624143 | KM | LATITUDE ARC LENGTH TO TARGET | = | 24.2227423 KM |
| FORWARD OVERLAP RATIO | = | 0. | PCT | SIDE OVERLAP RATIO | = | 0. PCT |
| TIME BETWEEN PHOTOS | = | 0. | SEC | ALPHA | = | 4.8039336 DEG. |

| | X | Y | Z | MAGNITUDE (KM) |
|---|---|---|---|---|
| DIRECTION COSINES TO TARGET CAMERA AXIS | -0.82844981 | 0.40349765 | -0.38840773 | 58.71374130 |
| C1 | -0.77493626 | 0.57087561 | -0.27124680 | 53.64128113 |
| C2 | -0.73078309 | 0.67109531 | -0.12484856 | 51.36482239 |
| C3 | -0.79318646 | 0.51261687 | -0.44036134 | 58.22654724 |
| C4 | -0.78687672 | 0.45157388 | -0.40857837 | 58.24114990 |
| | | 0.61005231 | -0.09306559 | 51.37612915 |

| | X | Y | Z | X DOT | Y DOT | Z DOT |
|---|---|---|---|---|---|---|
| STATE VECTOR (1950.0) | -331.6778450 | -1604.6070862 | -717.7410049 | 1.7726300 | -0.0469043 | -0.7166044 |

LONG -42.8028 DEG
LATI -1.6791 DEG

LONG -43.1962 DEG
LATI -3.2014 DEG

* (1) 47.69249 KM * (2)

LOW RESOLUTION

32.40942 KM 43.22916 KM

(4) * 47.79318 KM (3) *

LONG -43.8006 DEG
LATI -1.2963 DEG

LONG -44.5294 DEG
LATI -2.6934 DEG

LONG -43.3569 DEG
LATI -1.8423 DEG

LONG -43.5897 DEG
LATI -2.4766 DEG

* (1) 20.49503 KM * (2)

HIGH RESOLUTION

4.56098 KM 5.17036 KM

(4) * 20.50042 KM (3) *

LONG -43.4973 DEG
LATI -1.7885 DEG

LONG -43.7490 DEG
LATI -2.4157 DEG

LOW RESOLUTION 181

| INDEX | LONGITUDE | LATITUDE |
|---|---|---|
| 1 | -42.8028412 | -1.6790603 |
| 2 | -42.8328977 | -1.7935223 |
| 3 | -42.8629298 | -1.9081849 |
| 4 | -42.8932457 | -2.0242418 |
| 5 | -42.9241695 | -2.1429470 |
| 6 | -42.9560494 | -2.2656744 |
| 7 | -42.9892850 | -2.3939821 |
| 8 | -43.0243306 | -2.5297022 |
| 9 | -43.0617428 | -2.6750632 |
| 10 | -43.1022186 | -2.8328593 |
| 11 | -43.1466355 | -3.0066970 |
| 12 | -43.1961679 | -3.2013839 |
| 13 | -43.3240118 | -3.1512648 |
| 14 | -43.4474812 | -3.1031444 |
| 15 | -43.5677199 | -3.0565506 |
| 16 | -43.6857595 | -3.0110658 |
| 17 | -43.8025556 | -2.9663110 |
| 18 | -43.9190207 | -2.9219293 |
| 19 | -44.0360627 | -2.8775783 |
| 20 | -44.1546006 | -2.8329123 |
| 21 | -44.2756109 | -2.7875777 |
| 22 | -44.4001493 | -2.7412007 |
| 23 | -44.5293903 | -2.6933698 |
| 24 | -44.4354339 | -2.5151727 |
| 25 | -44.3517337 | -2.3559439 |
| 26 | -44.2759118 | -2.2113121 |
| 27 | -44.2061925 | -2.0779954 |
| 28 | -44.1412101 | -1.9534494 |
| 29 | -44.0798717 | -1.8356449 |
| 30 | -44.0212889 | -1.7229049 |
| 31 | -43.9647079 | -1.6138063 |
| 32 | -43.9094687 | -1.5070906 |
| 33 | -43.8549671 | -1.4016086 |
| 34 | -43.8006330 | -1.2962606 |
| 35 | -43.7044945 | -1.3332239 |
| 36 | -43.6116724 | -1.3689005 |
| 37 | -43.5213227 | -1.4036081 |
| 38 | -43.4326906 | -1.4376429 |
| 39 | -43.3450727 | -1.4712714 |
| 40 | -43.2578068 | -1.5047521 |
| 41 | -43.1702271 | -1.5383379 |
| 42 | -43.0816703 | -1.5722839 |
| 43 | -42.9914331 | -1.6068558 |
| 44 | -42.9987679 | -1.6423429 |

HIGH RESOLUTION 181

| INDEX | LONGITUDE | LATITUDE |
|---|---|---|
| 1 | -43.3568549 | -1.8422685 |
| 2 | -43.3760171 | -1.8944528 |
| 3 | -43.3954115 | -1.9472835 |
| 4 | -43.4150925 | -2.0008894 |
| 5 | -43.4351048 | -2.0554096 |
| 6 | -43.4555068 | -2.1109895 |
| 7 | -43.4763560 | -2.1677859 |
| 8 | -43.4977107 | -2.2259697 |
| 9 | -43.5196424 | -2.2857270 |
| 10 | -43.5422230 | -2.3472585 |
| 11 | -43.5655379 | -2.4107895 |
| 12 | -43.5896754 | -2.4765659 |
| 13 | -43.6041694 | -2.4710181 |
| 14 | -43.6186562 | -2.4654754 |
| 15 | -43.6331363 | -2.4599370 |
| 16 | -43.6476126 | -2.4544028 |
| 17 | -43.6620893 | -2.4488721 |
| 18 | -43.6765661 | -2.4433422 |
| 19 | -43.6910424 | -2.4378157 |
| 20 | -43.7055259 | -2.4322875 |
| 21 | -43.7200160 | -2.4267602 |
| 22 | -43.7345133 | -2.4212320 |
| 23 | -43.7490206 | -2.4157021 |
| 24 | -43.7228951 | -2.3506668 |
| 25 | -43.6976676 | -2.2878512 |
| 26 | -43.6732364 | -2.2270088 |
| 27 | -43.6495185 | -2.1679199 |
| 28 | -43.6264253 | -2.1103841 |
| 29 | -43.6038895 | -2.0542178 |
| 30 | -43.5818381 | -1.9992544 |
| 31 | -43.5602136 | -1.9453377 |
| 32 | -43.5389547 | -1.8923209 |
| 33 | -43.5180063 | -1.8400726 |
| 34 | -43.4973211 | -1.7884602 |
| 35 | -43.4845352 | -1.7933558 |
| 36 | -43.4717560 | -1.7982496 |
| 37 | -43.4589868 | -1.8031400 |
| 38 | -43.4462214 | -1.8080296 |
| 39 | -43.4334588 | -1.8129183 |
| 40 | -43.4206967 | -1.8178053 |
| 41 | -43.4079380 | -1.8226949 |
| 42 | -43.3951726 | -1.8275844 |
| 43 | -43.3824067 | -1.8324765 |
| 44 | -43.3696342 | -1.8373704 |

**********
* PHOTO FRAME NUMBER 2 OF 4 *
**********

## FRAME 182

| | YEAR | MONTH | DAY | HOUR | MINUTE | SECOND |
|---|---|---|---|---|---|---|
| GMT | 67 | 2 | 22 | 1 | 55 | 16.600 |

| | | | | | |
|---|---|---|---|---|---|
| LONGITUDE OF NADIR POINT | = | -43.1970482 | DEG | LATITUDE OF NADIR POINT | = | -1.6364535 | DEG |
| LONG OF CAMERA AXIS INTERSECT | = | -43.3992672 | DEG | LATI OF CAMERA AXIS INTERSECT | = | -2.1641890 | DEG |
| SPACECRAFT RADIUS | = | 1788.8374481 | KM | SPACECRAFT ALTITUDE | = | 50.7474516 | KM |
| MEAN ALTITUDE RATE | = | 0.0021558 | KM/SEC | TIME FROM PERIAPSIS | = | 4.2040010 | SEC |
| HORIZONTAL VELOCITY | = | 1.9125701 | KM/SEC | TRUE ANOMALY | = | 0.2575356 | DEG |
| SCALE FACTOR (HIGH) | = | 0.0113711 | M/KM | TILT DISTANCE (HIGH) | = | 205.7181301 | MM |
| SCALE FACTOR (LOW) | = | 0.0014913 | M/KM | TILT DISTANCE (LOW) | = | 26.9794269 | MM |
| IMAGE MOTION COMPENSATION (V/H) | = | 0.0356521 | RAD/SEC | SWING ANGLE | = | 359.9667262 | DEG |
| EMISSION ANGLE | = | 19.2014275 | DEG | INCIDENCE ANGLE | = | 73.1775208 | DEG |
| PHASE ANGLE | = | 67.5657711 | DEG | NORTH DEVIATION ANGLE | = | 337.8881989 | DEG |
| TILT ANGLE | = | 18.6363099 | DEG | RESOLUTION CONSTANT | = | 1.1640923 | MTR |
| TILT AZIMUTH | = | 200.9529476 | DEG | SUN AZIMUTH AT PRINCIPAL GND PT | = | 90.8352175 | DEG |
| SUN ANGLE AT NADIR | = | 72.9838343 | DEG | SUN ARC AT NADIR | = | 2213.9933167 | KM |
| LONGITUDE DISTANCE TO TARGET | = | 0.6699519 | DEG | LATITUDE DISTANCE TO TARGET | = | 0.7465464 | DEG |
| LONGITUDE ARC LENGTH TO TARGET | = | 20.3232546 | KM | LATITUDE ARC LENGTH TO TARGET | = | 22.6467800 | KM |
| FORWARD OVERLAP RATIO | = | 5.5372582 | PCT | SIDE OVERLAP RATIO | = | 0. | PCT |
| TIME BETWEEN PHOTOS | = | 2.3999870 | SEC | ALPHA | = | 4.6491248 | DEG. |

| | X | Y | Z | MAGNITUDE (KM) |
|---|---|---|---|---|
| DIRECTION COSINES TO TARGET | -0.86783802 | 0.34590935 | -0.35665654 | 59.39447594 |
| CAMERA AXIS | -0.77493290 | 0.57088021 | -0.27124672 | 53.64480591 |
| C1 | -0.73077914 | 0.67109963 | -0.12484846 | 51.37440491 |
| C2 | -0.73708982 | 0.51262127 | -0.44036127 | 58.23808289 |
| C3 | -0.79318380 | 0.45157859 | -0.40857828 | 58.23693848 |
| C4 | -0.78687313 | 0.61005695 | -0.09306550 | 51.37351990 |

| | X | Y | Z | X DOT | Y DOT | Z DOT |
|---|---|---|---|---|---|---|
| STATE VECTOR (1950.0) | -327.4244576 | -1604.7156525 | -719.4583740 | 1.7733076 | -0.0436063 | -0.7151281 |

LONG -42.6611 DEG
LATI -1.7326 DEG

LONG -43.0546 DEG
LATI -3.2568 DEG

* 47.74955 KM *
(1) (2)

LOW RESOLUTION

32.41161 KM 43.23143 KM

(4) (3)
* 47.74168 KM *

LONG -43.6591 DEG
LATI -1.3500 DEG

LONG -44.3868 DEG
LATI -2.7457 DEG

LONG -43.2157 DEG
LATI -1.8958 DEG

LONG -43.4485 DEG
LATI -2.5302 DEG

* 20.49919 KM *
(1) (2)

HIGH RESOLUTION

4.56128 KM 5.17064 KM

(4) (3)
* 20.49875 KM *

LONG -43.3561 DEG
LATI -1.8419 DEG

LONG -43.6078 DEG
LATI -2.4691 DEG

LOW RESOLUTION 182

| INDEX | LONGITUDE | LATITUDE |
|---|---|---|
| 1 | -42.6611490 | -1.7325791 |
| 2 | -42.6912189 | -1.8471529 |
| 3 | -42.7212582 | -1.9619308 |
| 4 | -42.7515841 | -2.0781089 |
| 5 | -42.7825179 | -2.1969457 |
| 6 | -42.8144116 | -2.3198148 |
| 7 | -42.8476610 | -2.4482753 |
| 8 | -42.8827205 | -2.5841653 |
| 9 | -42.9201531 | -2.7297184 |
| 10 | -42.9606462 | -2.8877305 |
| 11 | -43.0050864 | -3.0618192 |
| 12 | -43.0546465 | -3.2568049 |
| 13 | -43.1826611 | -3.2062880 |
| 14 | -43.3062401 | -3.1578039 |
| 15 | -43.4265366 | -3.1108779 |
| 16 | -43.5445795 | -3.0650866 |
| 17 | -43.6613345 | -3.0200466 |
| 18 | -43.7777109 | -2.9753985 |
| 19 | -43.8946161 | -2.9307983 |
| 20 | -44.0129662 | -2.8858975 |
| 21 | -44.1337376 | -2.8403435 |
| 22 | -44.2579722 | -2.7937573 |
| 23 | -44.3868408 | -2.7457309 |
| 24 | -44.2930517 | -2.5677566 |
| 25 | -44.2094913 | -2.4087140 |
| 26 | -44.1337891 | -2.2642401 |
| 27 | -44.0641756 | -2.1310617 |
| 28 | -43.9992819 | -2.0066378 |
| 29 | -43.9380288 | -1.8889417 |
| 30 | -43.8795252 | -1.7763008 |
| 31 | -43.8230119 | -1.6672935 |
| 32 | -43.7678375 | -1.5606615 |
| 33 | -43.7133975 | -1.4552571 |
| 34 | -43.6591182 | -1.3499835 |
| 35 | -43.5631166 | -1.3868716 |
| 36 | -43.4703898 | -1.4224842 |
| 37 | -43.3801084 | -1.4571440 |
| 38 | -43.2915139 | -1.4911395 |
| 39 | -43.2039065 | -1.5247407 |
| 40 | -43.1166234 | -1.5582035 |
| 41 | -43.0289993 | -1.5917807 |
| 42 | -42.9403739 | -1.6257276 |
| 43 | -42.8500381 | -1.6603139 |
| 44 | -42.7572432 | -1.6958250 |

HIGH RESOLUTION 182

| INDEX | LONGITUDE | LATITUDE |
|---|---|---|
| 1 | -43.2156649 | -1.8957873 |
| 2 | -43.2348270 | -1.9479827 |
| 3 | -43.2542210 | -2.0008253 |
| 4 | -43.2738991 | -2.0544440 |
| 5 | -43.2939148 | -2.1089754 |
| 6 | -43.3143167 | -2.1645689 |
| 7 | -43.3351622 | -2.2213790 |
| 8 | -43.3565168 | -2.2795765 |
| 9 | -43.3784485 | -2.3393483 |
| 10 | -43.4010291 | -2.4008943 |
| 11 | -43.4243407 | -2.4644406 |
| 12 | -43.4484787 | -2.5302350 |
| 13 | -43.4629722 | -2.5246650 |
| 14 | -43.4774523 | -2.5191009 |
| 15 | -43.4919324 | -2.5135412 |
| 16 | -43.5064020 | -2.5079857 |
| 17 | -43.5208716 | -2.5024327 |
| 18 | -43.5353413 | -2.4968832 |
| 19 | -43.5498114 | -2.4913345 |
| 20 | -43.5642877 | -2.4857884 |
| 21 | -43.5787678 | -2.4802414 |
| 22 | -43.5932579 | -2.4746936 |
| 23 | -43.6077552 | -2.4691441 |
| 24 | -43.5816364 | -2.4041121 |
| 25 | -43.5564160 | -2.3413000 |
| 26 | -43.5319948 | -2.2804610 |
| 27 | -43.5082803 | -2.2213756 |
| 28 | -43.4851975 | -2.1638423 |
| 29 | -43.4626684 | -2.1076785 |
| 30 | -43.4406238 | -2.0527177 |
| 31 | -43.4190030 | -1.9988019 |
| 32 | -43.3977509 | -1.9457885 |
| 33 | -43.3768096 | -1.8935401 |
| 34 | -43.3561244 | -1.8419304 |
| 35 | -43.3433414 | -1.8468293 |
| 36 | -43.3305688 | -1.8517257 |
| 37 | -43.3178000 | -1.8566204 |
| 38 | -43.3050342 | -1.8615134 |
| 39 | -43.2922754 | -1.8664064 |
| 40 | -43.2795134 | -1.8712993 |
| 41 | -43.2667546 | -1.8761932 |
| 42 | -43.2539887 | -1.8810870 |
| 43 | -43.2412200 | -1.8859842 |
| 44 | -43.2284474 | -1.8908841 |

**********
* PHOTO FRAME NUMBER 3 OF 4 *
********** FRAME 183

| | YEAR | MONTH | DAY | HOUR | MINUTE | SECOND |
|---|---|---|---|---|---|---|
| GMT | 67 | 2 | 22 | 1 | 55 | 19.000 |

| | | | | | |
|---|---|---|---|---|---|
| LONGITUDE OF NADIR POINT | = | -43.0597687 | DEG | LATITUDE OF NADIR POINT | = -1.6884390 DEG |
| LONG OF CAMERA AXIS INTERSECT | = | -43.2579608 | DEG | LATI OF CAMERA AXIS INTERSECT | = -2.2177778 DEG |
| SPACECRAFT RADIUS | = | 1788.8440857 | KM | SPACECRAFT ALTITUDE | = 50.7540894 KM |
| MEAN ALTITUDE RATE | = | 0.0033860 | KM/SEC | TIME FROM PERIAPSIS | = 6.6032708 SEC |
| HORIZONTAL VELOCITY | = | 1.9125635 | KM/SEC | TRUE ANOMALY | = 0.4045124 DEG |
| SCALE FACTOR (HIGH) | = | 0.0113696 | M/KM | TILT DISTANCE (HIGH) | = 205.7171974 MM |
| SCALE FACTOR (LOW) | = | 0.0014911 | M/KM | TILT DISTANCE (LOW) | = 26.9793048 MM |
| IMAGE MOTION COMPENSATION (V/H) | = | 0.0356473 | RAD/SEC | SWING ANGLE | = 359.5065727 DEG |
| EMISSION ANGLE | = | 19.2014210 | DEG | INCIDENCE ANGLE | = 73.0352221 DEG |
| PHASE ANGLE | = | 67.5657721 | DEG | NORTH DEVIATION ANGLE | = 337.8869553 DEG |
| TILT ANGLE | = | 18.6362314 | DEG | RESOLUTION CONSTANT | = 1.1642443 MTR |
| TILT AZIMUTH | = | 200.5129032 | DEG | SUN AZIMUTH AT PRINCIPAL GND PT | = 90.8141470 DEG |
| SUN ANGLE AT NADIR | = | 72.8454056 | DEG | SUN ARC AT NADIR | = 2209.7940369 KM |
| LONGITUDE DISTANCE TO TARGET | = | 0.8072314 | DEG | LATITUDE DISTANCE TO TARGET | = 0.6945610 DEG |
| LONGITUDE ARC LENGTH TO TARGET | = | 24.4876828 | KM | LATITUDE ARC LENGTH TO TARGET | = 21.0697823 KM |
| FORWARD OVERLAP RATIO | = | 5.4683909 | PCT | SIDE OVERLAP RATIO | = 0. PCT |
| TIME BETWEEN PHOTOS | = | 2.3999870 | SEC | ALPHA | = 4.4941313 DEG. |

| DIRECTION COSINES TO TARGET | X | Y | Z | MAGNITUDE (KM) |
|---|---|---|---|---|
| CAMERA AXIS | -0.90126066 | 0.28788415 | -0.32380849 | 60.40878487 |
| C1 | -0.77492952 | 0.57088482 | -0.27124663 | 53.65180969 |
| C2 | -0.73077517 | 0.67110397 | -0.12484838 | 51.38732910 |
| C3 | -0.73708680 | 0.51262567 | -0.44036119 | 58.25341797 |
| C4 | -0.79318114 | 0.45158333 | -0.40857822 | 58.23652649 |
| | -0.78686952 | 0.61006162 | -0.09306542 | 51.37425232 |

| | X | Y | Z | X DOT | Y DOT | Z DOT |
|---|---|---|---|---|---|---|
| STATE VECTOR (1950.0) | -323.1659393 | -1604.8163757 | -721.1736221 | 1.7739771 | -0.0403053 | -0.7136471 |

LONG -42.5193 DEG
LATI -1.7861 DEG

LONG -42.9130 DEG
LATI -1.3124 DEG

(1) • 47.80993 KM • (2)

LOW RESOLUTION

32.41615 KM 43.23722 KM

(4) • 47.69342 KM • (3)

LONG -43.5175 DEG
LATI -1.4037 DEG

LONG -44.2443 DEG
LATI -2.7982 DEG

LONG -43.0744 DEG
LATI -1.9494 DEG

LONG -43.3072 DEG
LATI -2.5840 DEG

(1) • 20.50468 KM • (2)

HIGH RESOLUTION

4.56190 KM 5.17135 KM

(4) • 20.49844 KM • (3)

LONG -43.2148 DEG
LATI -1.8954 DEG

LONG -43.4664 DEG
LATI -2.5227 DEG

LOW RESOLUTION 183

| INDEX | LONGITUDE | LATITUDE |
|---|---|---|
| 1 | -42.5192962 | -1.7861388 |
| 2 | -42.5493765 | -1.9008314 |
| 3 | -42.5794258 | -2.0157339 |
| 4 | -42.6097655 | -2.1320426 |
| 5 | -42.6407132 | -2.2510177 |
| 6 | -42.6726203 | -2.3740354 |
| 7 | -42.7058835 | -2.5026598 |
| 8 | -42.7409630 | -2.6387291 |
| 9 | -42.7784133 | -2.7844819 |
| 10 | -42.8189263 | -2.9427238 |
| 11 | -42.8633943 | -3.1170763 |
| 12 | -42.9129848 | -3.3123744 |
| 13 | -43.0411773 | -3.2614537 |
| 14 | -43.1648788 | -3.2126025 |
| 15 | -43.2852407 | -3.1653384 |
| 16 | -43.4033003 | -3.1192364 |
| 17 | -43.5200181 | -3.0739087 |
| 18 | -43.6363158 | -3.0289925 |
| 19 | -43.7530913 | -2.9841395 |
| 20 | -43.8712640 | -2.9390013 |
| 21 | -43.9918032 | -2.8932237 |
| 22 | -44.1157436 | -2.8464284 |
| 23 | -44.2442536 | -2.7982021 |
| 24 | -44.1506252 | -2.6204396 |
| 25 | -44.0671983 | -2.4615711 |
| 26 | -43.9916120 | -2.3172466 |
| 27 | -43.9220977 | -2.1841963 |
| 28 | -43.8572927 | -2.0598868 |
| 29 | -43.7961183 | -1.9422906 |
| 30 | -43.7376857 | -1.8297410 |
| 31 | -43.6812410 | -1.7208158 |
| 32 | -43.6261282 | -1.6142614 |
| 33 | -43.5717430 | -1.5089296 |
| 34 | -43.5175214 | -1.4037225 |
| 35 | -43.4216428 | -1.4405372 |
| 36 | -43.3290081 | -1.4760909 |
| 37 | -43.2387848 | -1.5107021 |
| 38 | -43.1502213 | -1.5446618 |
| 39 | -43.0626173 | -1.5782373 |
| 40 | -42.9753103 | -1.6116856 |
| 41 | -42.8876414 | -1.6452559 |
| 42 | -42.7989378 | -1.6792080 |
| 43 | -42.7084961 | -1.7138071 |
| 44 | -42.6155643 | -1.7493446 |



HIGH RESOLUTION 183

| INDEX | LONGITUDE | LATITUDE |
|---|---|---|
| 1 | -43.0743551 | -1.9493573 |
| 2 | -43.0935135 | -2.0015681 |
| 3 | -43.1129112 | -2.0544261 |
| 4 | -43.1325927 | -2.1080593 |
| 5 | -43.1526051 | -2.1626086 |
| 6 | -43.1730103 | -2.2182174 |
| 7 | -43.1938558 | -2.2750455 |
| 8 | -43.2152104 | -2.3332617 |
| 9 | -43.2371421 | -2.3930515 |
| 10 | -43.2597265 | -2.4546171 |
| 11 | -43.2830377 | -2.5181831 |
| 12 | -43.3071756 | -2.5839980 |
| 13 | -43.3216658 | -2.5784058 |
| 14 | -43.3361459 | -2.5728187 |
| 15 | -43.3506188 | -2.5672384 |
| 16 | -43.3650889 | -2.5616598 |
| 17 | -43.3795519 | -2.5560873 |
| 18 | -43.3940182 | -2.5505164 |
| 19 | -43.4084845 | -2.5449481 |
| 20 | -43.4229507 | -2.5393806 |
| 21 | -43.4374237 | -2.5338131 |
| 22 | -43.4519038 | -2.5282449 |
| 23 | -43.4663939 | -2.5226765 |
| 24 | -43.4402823 | -2.4576437 |
| 25 | -43.4150686 | -2.3948316 |
| 26 | -43.3906541 | -2.3339908 |
| 27 | -43.3669467 | -2.2749037 |
| 28 | -43.3438673 | -2.2173696 |
| 29 | -43.3213415 | -2.1612050 |
| 30 | -43.2993002 | -2.1062416 |
| 31 | -43.2776861 | -2.0523250 |
| 32 | -43.2564378 | -1.9993099 |
| 33 | -43.2354994 | -1.9470598 |
| 34 | -43.2148180 | -1.8954475 |
| 35 | -43.2020383 | -1.9003498 |
| 36 | -43.1892662 | -1.9052514 |
| 37 | -43.1764970 | -1.9101495 |
| 38 | -43.1637349 | -1.9150476 |
| 39 | -43.1509728 | -1.9199439 |
| 40 | -43.1382136 | -1.9248420 |
| 41 | -43.1254516 | -1.9297413 |
| 42 | -43.1126862 | -1.9346408 |
| 43 | -43.0999169 | -1.9395432 |
| 44 | -43.0871377 | -1.9444481 |

**********
* PHOTO FRAME NUMBER 4 OF 4 *
********** **FRAME 184**

| | YEAR | MONTH | DAY | HOUR | MINUTE | SECOND |
|---|---|---|---|---|---|---|
| GMT | 67 | 2 | 22 | 1 | 55 | 21.400 |

| | | | | | |
|---|---|---|---|---|---|
| LONGITUDE OF NADIR POINT | = | -42.9225426 | DEG | LATITUDE OF NADIR POINT | = -1.7403911 DEG |
| LONG OF CAMERA AXIS INTERSECT | = | -43.1167126 | DEG | LATI OF CAMERA AXIS INTERSECT | = -2.2713683 DEG |
| SPACECRAFT RADIUS | = | 1788.8536987 | KM | SPACECRAFT ALTITUDE | = 50.7637024 KM |
| MEAN ALTITUDE RATE | = | 0.0046158 | KM/SEC | TIME FROM PERIAPSIS | = 9.0015109 SEC |
| HORIZONTAL VELOCITY | = | 1.9125537 | KM/SEC | TRUE ANOMALY | = 0.5514248 DEG |
| SCALE FACTOR (HIGH) | = | 0.0113674 | M/KM | TILT DISTANCE (HIGH) | = 205.7294579 MM |
| SCALE FACTOR (LOW) | = | 0.0014908 | M/KM | TILT DISTANCE (LOW) | = 26.9809124 MM |
| IMAGE MOTION COMPENSATION (V/H) | = | 0.0356401 | RAD/SEC | SWING ANGLE | = 359.0466461 DEG |
| EMISSION ANGLE | = | 19.2025931 | DEG | INCIDENCE ANGLE | = 72.8930382 DEG |
| PHASE ANGLE | = | 67.5657721 | DEG | NORTH DEVIATION ANGLE | = 337.8459863 DEG |
| TILT ANGLE | = | 18.6372652 | DEG | RESOLUTION CONSTANT | = 1.1644721 MTR |
| TILT AZIMUTH | = | 200.0729446 | DEG | SUN AZIMUTH AT PRINCIPAL GND PT | = 90.7927904 DEG |
| SUN ANGLE AT NADIR | = | 72.7070494 | DEG | SUN ARC AT NADIR | = 2205.5969543 KM |
| LONGITUDE DISTANCE TO TARGET | = | 0.9444575 | DEG | LATITUDE DISTANCE TO TARGET | = 0.6426089 DEG |
| LONGITUDE ARC LENGTH TO TARGET | = | 28.6504905 | KM | LATITUDE ARC LENGTH TO TARGET | = 19.4937940 KM |
| FORWARD OVERLAP RATIO | = | 5.5203070 | PCT | SIDE OVERLAP RATIO | = 0. PCT |
| TIME BETWEEN PHOTOS | = | 2.3999870 | SEC | ALPHA | = 4.3391464 DEG. |

| | X | Y | Z | MAGNITUDE (KM) |
|---|---|---|---|---|
| DIRECTION COSINES TO TARGET | -0.92867462 | 0.23051183 | -0.29056450 | 61.73938465 |
| CAMERA AXIS | -0.77492618 | 0.57088942 | -0.27124657 | 53.66230774 |
| C1 | -0.73077122 | 0.67110828 | -0.12484830 | 51.40361023 |
| C2 | -0.73708379 | 0.51263005 | -0.44036113 | 58.27256775 |
| C3 | -0.79317850 | 0.45158804 | -0.40857816 | 58.23994446 |
| C4 | -0.78686593 | 0.61006627 | -0.09306534 | 51.37832642 |

| | X | Y | Z | X DOT | Y DOT | Z DOT |
|---|---|---|---|---|---|---|
| STATE VECTOR (1950.0) | -318.9076118 | -1604.9091492 | -722.8845901 | 1.7746375 | -0.0370056 | -0.7121632 |

LONG -42.3775 DEG
LATI -1.8397 DEG

LONG -42.7714 DEG
LATI -3.3680 DEG

(1) • 47.87361 KM • (2)

LOW RESOLUTION

32.42310 KM 43.24655 KM

(4) • 47.64843 KM • (3)

LONG -43.3760 DEG
LATI -1.4574 DEG

LONG -44.1018 DEG
LATI -2.8507 DEG

LONG -42.9331 DEG
LATI -2.0029 DEG

LONG -43.1659 DEG
LATI -2.6378 DEG

(1) • 20.51151 KM • (2)

HIGH RESOLUTION

4.56285 KM 5.17242 KM

(4) • 20.49947 KM • (3)

LONG -43.0736 DEG
LATI -1.9489 DEG

LONG -43.3251 DEG
LATI -2.5762 DEG

LOW RESOLUTION 184

| INDEX | LONGITUDE | LATITUDE |
|---|---|---|
| 1 | -42.3774505 | -1.8396713 |
| 2 | -42.4075441 | -1.9544902 |
| 3 | -42.4376106 | -2.0695251 |
| 4 | -42.4679604 | -2.1859738 |
| 5 | -42.4989219 | -2.3050957 |
| 6 | -42.5308461 | -2.4282705 |
| 7 | -42.5641260 | -2.5570665 |
| 8 | -42.5992231 | -2.6933254 |
| 9 | -42.6366968 | -2.8392891 |
| 10 | -42.6772342 | -2.9977683 |
| 11 | -42.7217293 | -3.1724000 |
| 12 | -42.7713542 | -3.3680260 |
| 13 | -42.8997378 | -3.3166954 |
| 14 | -43.0235658 | -3.2674719 |
| 15 | -43.1440024 | -3.2198672 |
| 16 | -43.2620826 | -3.1734518 |
| 17 | -43.3787799 | -3.1278304 |
| 18 | -43.4950023 | -3.0826428 |
| 19 | -43.6116619 | -3.0375345 |
| 20 | -43.7296672 | -2.9921573 |
| 21 | -43.8499808 | -2.9461525 |
| 22 | -43.9736414 | -2.8991438 |
| 23 | -44.1018033 | -2.8507186 |
| 24 | -44.0083251 | -2.6731524 |
| 25 | -43.9250278 | -2.5144487 |
| 26 | -43.8495474 | -2.3702634 |
| 27 | -43.7801285 | -2.2373317 |
| 28 | -43.7154093 | -2.1131265 |
| 29 | -43.6543097 | -1.9956233 |
| 30 | -43.5959458 | -1.8831574 |
| 31 | -43.5395627 | -1.7743081 |
| 32 | -43.4845080 | -1.6678237 |
| 33 | -43.4301772 | -1.5625560 |
| 34 | -43.3760071 | -1.4574095 |
| 35 | -43.2802477 | -1.4941525 |
| 36 | -43.1876950 | -1.5296482 |
| 37 | -43.0975227 | -1.5642166 |
| 38 | -43.0089831 | -1.5981413 |
| 39 | -42.9213791 | -1.6316938 |
| 40 | -42.8340449 | -1.6651275 |
| 41 | -42.7463179 | -1.6986953 |
| 42 | -42.6575322 | -1.7326542 |
| 43 | -42.5669780 | -1.7672704 |
| 44 | -42.4738994 | -1.8028369 |

HIGH RESOLUTION 184

| INDEX | LONGITUDE | LATITUDE |
|---|---|---|
| 1 | -42.9330897 | -2.0029111 |
| 2 | -42.9522519 | -2.0551407 |
| 3 | -42.9716530 | -2.1080175 |
| 4 | -42.9913340 | -2.1616712 |
| 5 | -43.0113497 | -2.2162392 |
| 6 | -43.0317550 | -2.2718694 |
| 7 | -43.0526042 | -2.3287179 |
| 8 | -43.0739622 | -2.3869556 |
| 9 | -43.0958972 | -2.4467675 |
| 10 | -43.1184816 | -2.5083570 |
| 11 | -43.1417961 | -2.5719478 |
| 12 | -43.1659341 | -2.6377874 |
| 13 | -43.1804242 | -2.6321730 |
| 14 | -43.1949043 | -2.6265637 |
| 15 | -43.2093740 | -2.6209604 |
| 16 | -43.2238407 | -2.6153613 |
| 17 | -43.2383032 | -2.6097666 |
| 18 | -43.2527628 | -2.6041735 |
| 19 | -43.2672224 | -2.5985838 |
| 20 | -43.2816854 | -2.5929959 |
| 21 | -43.2961516 | -2.5874088 |
| 22 | -43.3106251 | -2.5818200 |
| 23 | -43.3251081 | -2.5762312 |
| 24 | -43.2990031 | -2.5111941 |
| 25 | -43.2737932 | -2.4483752 |
| 26 | -43.2493820 | -2.3875318 |
| 27 | -43.2256780 | -2.3284379 |
| 28 | -43.2026019 | -2.2708987 |
| 29 | -43.1800795 | -2.2147298 |
| 30 | -43.1580453 | -2.1597613 |
| 31 | -43.1364312 | -2.1058395 |
| 32 | -43.1151857 | -2.0528184 |
| 33 | -43.0942478 | -2.0005632 |
| 34 | -43.0735731 | -1.9489458 |
| 35 | -43.0607934 | -1.9538524 |
| 36 | -43.0480213 | -1.9587573 |
| 37 | -43.0352521 | -1.9636606 |
| 38 | -43.0224900 | -1.9685638 |
| 39 | -43.0097275 | -1.9734653 |
| 40 | -42.9969654 | -1.9783677 |
| 41 | -42.9842000 | -1.9832717 |
| 42 | -42.9714341 | -1.9881775 |
| 43 | -42.9586620 | -1.9930850 |
| 44 | -42.9458790 | -1.9979959 |

**********
* PHOTO FRAME NUMBER 1 OF 16 *
********** FRAME 185

| | YEAR | MONTH | DAY | HOUR | MINUTE | SECOND |
|---|---|---|---|---|---|---|
| GMT | 67 | 2 | 22 | 5 | 23 | 53.100 |

| | | | | | | |
|---|---|---|---|---|---|---|
| LONGITUDE OF NADIR POINT | = | -44.5742569 | DEG | LATITUDE OF NADIR POINT | = | -1.8575143 DEG |
| LONG OF CAMERA AXIS INTERSECT | = | -44.7249861 | DEG | LATI OF CAMERA AXIS INTERSECT | = | -2.1962515 DEG |
| SPACECRAFT RADIUS | = | 1789.4414062 | KM | SPACECRAFT ALTITUDE | = | 51.3514099 KM |
| MEAN ALTITUDE RATE | = | 0.0066466 | KM/SEC | TIME FROM PERIAPSIS | = | 12.9787015 SEC |
| HORIZONTAL VELOCITY | = | 1.9120745 | KM/SEC | TRUE ANOMALY | = | 0.7946162 DEG |
| SCALE FACTOR (HIGH) | = | 0.0115961 | M/KM | TILT DISTANCE (HIGH) | = | 133.4958038 MM |
| SCALE FACTOR (LOW) | = | 0.0015208 | M/KM | TILT DISTANCE (LOW) | = | 17.5076466 MM |
| IMAGE MOTION COMPENSATION (V/H) | = | 0.0363442 | RAD/SEC | SWING ANGLE | = | 3.0239101 DEG |
| EMISSION ANGLE | = | 12.7150378 | DEG | INCIDENCE ANGLE | = | 72.7443724 DEG |
| PHASE ANGLE | = | 68.1570120 | DEG | NORTH DEVIATION ANGLE | = | 338.5128174 DEG |
| TILT ANGLE | = | 12.3443136 | DEG | RESOLUTION CONSTANT | = | 1.1415059 MTR |
| TILT AZIMUTH | = | 203.9731636 | DEG | SUN AZIMUTH AT PRINCIPAL GND PT | = | 90.8085546 DEG |
| SUN ANGLE AT NADIR | = | 72.5988245 | DEG | SUN ARC AT NADIR | = | 2202.3139038 KM |
| LONGITUDE DISTANCE TO TARGET | = | -0.7072568 | DEG | LATITUDE DISTANCE TO TARGET | = | 0.5254857 DEG |
| LONGITUDE ARC LENGTH TO TARGET | = | -21.4549129 | KM | LATITUDE ARC LENGTH TO TARGET | = | 15.9408149 KM |
| FORWARD OVERLAP RATIO | = | 0. | PCT | SIDE OVERLAP RATIO | = | 0. PCT |
| TIME BETWEEN PHOTOS | = | 0. | SEC | ALPHA | = | 4.1882357 DEG. |

| | X | Y | Z | MAGNITUDE (KM) |
|---|---|---|---|---|
| DIRECTION COSINES TO TARGET | -0.37939865 | 0.89202234 | -0.24566810 | 58.06733847 |
| CAMERA AXIS | -0.76098075 | 0.62781452 | -0.16357631 | 52.60395813 |
| C1 | -0.69987716 | 0.71411743 | -0.01443177 | 51.41760254 |
| C2 | -0.73993319 | 0.58098686 | -0.33904740 | 55.75643921 |
| C3 | -0.79664786 | 0.52052636 | -0.30725317 | 55.81909180 |
| C4 | -0.75659183 | 0.65365691 | 0.01736246 | 51.47074890 |

| | X | Y | Z | X DOT | Y DOT | Z DOT |
|---|---|---|---|---|---|---|
| STATE VECTOR (1950.0) | -311.0541000 | -1605.3074799 | -726.8657455 | 1.7753946 | -0.0302485 | -0.7093184 |

LONG -43.9777 DEG
LATI -1.7741 DEG

LONG -44.3976 DEG
LATI -3.1753 DEG

(1) * 44.36919 KM * (2)

LOW RESOLUTION

33.24053 KM 40.01408 KM

(4) * 44.76478 KM * (3)

LONG -45.0092 DEG
LATI -1.3790 DEG

LONG -45.6342 DEG
LATI -2.7118 DEG

LONG -44.5446 DEG
LATI -1.9369 DEG

LONG -44.7683 DEG
LATI -2.5361 DEG

(1) * 19.39931 KM * (2)

HIGH RESOLUTION

4.56782 KM 4.95356 KM

(4) * 19.42132 KM * (3)

LONG -44.6852 DEG
LATI -1.8829 DEG

LONG -44.9211 DEG
LATI -2.4782 DEG

LOW RESOLUTION 185

| INDEX | LONGITUDE | LATITUDE |
|---|---|---|
| 1 | -43.9776955 | -1.7740665 |
| 2 | -44.0129290 | -1.8900943 |
| 3 | -44.0475683 | -2.0044368 |
| 4 | -44.0819788 | -2.1182952 |
| 5 | -44.1165223 | -2.2328460 |
| 6 | -44.1515508 | -2.3492981 |
| 7 | -44.1874537 | -2.4689426 |
| 8 | -44.2246509 | -2.5932102 |
| 9 | -44.2636275 | -2.7237573 |
| 10 | -44.3049536 | -2.8625544 |
| 11 | -44.3493257 | -3.0120314 |
| 12 | -44.3976326 | -3.1752695 |
| 13 | -44.5154905 | -3.1301672 |
| 14 | -44.6294966 | -3.0867255 |
| 15 | -44.7406754 | -3.0445380 |
| 16 | -44.8499546 | -3.0032384 |
| 17 | -44.9582133 | -2.9624929 |
| 18 | -45.0662804 | -2.9219813 |
| 19 | -45.1749930 | -2.8813938 |
| 20 | -45.2852020 | -2.8404178 |
| 21 | -45.3978043 | -2.7987280 |
| 22 | -45.5137844 | -2.7559736 |
| 23 | -45.6342349 | -2.7117695 |
| 24 | -45.5596390 | -2.5567464 |
| 25 | -45.4915075 | -2.4147416 |
| 26 | -45.4283867 | -2.2828370 |
| 27 | -45.3691483 | -2.1587316 |
| 28 | -45.3128710 | -2.0405574 |
| 29 | -45.2587929 | -1.9267460 |
| 30 | -45.2062550 | -1.8159338 |
| 31 | -45.1546631 | -1.7068967 |
| 32 | -45.1034780 | -1.5984862 |
| 33 | -45.0521626 | -1.4895771 |
| 34 | -45.0001812 | -1.3790263 |
| 35 | -44.9011574 | -1.4174879 |
| 36 | -44.8056540 | -1.4545408 |
| 37 | -44.7127943 | -1.4905283 |
| 38 | -44.6217923 | -1.5257592 |
| 39 | -44.5319242 | -1.5605155 |
| 40 | -44.4425035 | -1.5950643 |
| 41 | -44.3528466 | -1.6296660 |
| 42 | -44.2622819 | -1.6645837 |
| 43 | -44.1700878 | -1.7000913 |
| 44 | -44.0755072 | -1.7364782 |

HIGH RESOLUTION 185

| INDEX | LONGITUDE | LATITUDE |
|---|---|---|
| 1 | -44.5445704 | -1.9368896 |
| 2 | -44.5637527 | -1.9882629 |
| 3 | -44.5830240 | -2.0398795 |
| 4 | -44.6024289 | -2.0918547 |
| 5 | -44.6220145 | -2.1443062 |
| 6 | -44.6418185 | -2.1973589 |
| 7 | -44.6618958 | -2.2511407 |
| 8 | -44.6822977 | -2.3057864 |
| 9 | -44.7030716 | -2.3614397 |
| 10 | -44.7242794 | -2.4182566 |
| 11 | -44.7459855 | -2.4764012 |
| 12 | -44.7682519 | -2.5360569 |
| 13 | -44.7821479 | -2.5307899 |
| 14 | -44.7960339 | -2.5255264 |
| 15 | -44.8099198 | -2.5202655 |
| 16 | -44.8238020 | -2.5150079 |
| 17 | -44.8376842 | -2.5097504 |
| 18 | -44.8515668 | -2.5044954 |
| 19 | -44.8654594 | -2.4992387 |
| 20 | -44.8793521 | -2.4939812 |
| 21 | -44.8932581 | -2.4887228 |
| 22 | -44.9071712 | -2.4834619 |
| 23 | -44.9210982 | -2.4781983 |
| 24 | -44.8975887 | -2.4189379 |
| 25 | -44.8746800 | -2.3611759 |
| 26 | -44.8522978 | -2.3047337 |
| 27 | -44.8303795 | -2.2494434 |
| 28 | -44.8088646 | -2.1951553 |
| 29 | -44.7876945 | -2.1417244 |
| 30 | -44.7668142 | -2.0890167 |
| 31 | -44.7461767 | -2.0369050 |
| 32 | -44.7257309 | -1.9852653 |
| 33 | -44.7054315 | -1.9339817 |
| 34 | -44.6852312 | -1.8829388 |
| 35 | -44.6724176 | -1.8878540 |
| 36 | -44.6596146 | -1.8927641 |
| 37 | -44.6468215 | -1.8976707 |
| 38 | -44.6340356 | -1.9025748 |
| 39 | -44.6212525 | -1.9074771 |
| 40 | -44.6084771 | -1.9123787 |
| 41 | -44.5956974 | -1.9172793 |
| 42 | -44.5829220 | -1.9221800 |
| 43 | -44.5701423 | -1.9270815 |
| 44 | -44.5573597 | -1.9319847 |

**********
* PHOTO FRAME NUMBER 2 OF 16 *
********** **FRAME 186**

| | YEAR | MONTH | DAY | HOUR | MINUTE | SECOND |
|---|---|---|---|---|---|---|
| GMT | 67 | 2 | 22 | 5 | 23 | 55.500 |

| | | | | | |
|---|---|---|---|---|---|
| LONGITUDE OF NADIR POINT | = | -44.4370308 | DEG | LATITUDE OF NADIR POINT | = -1.9094528 DEG |
| LONG OF CAMERA AXIS INTERSECT | = | -44.5837173 | DEG | LATI OF CAMERA AXIS INTERSECT | = -2.2498421 DEG |
| SPACECRAFT RADIUS | = | 1789.4588318 | KM | SPACECRAFT ALTITUDE | = 51.3688354 KM |
| MEAN ALTITUDE RATE | = | 0.0078751 | KM/SEC | TIME FROM PERIAPSIS | = 15.3778985 SEC |
| HORIZONTAL VELOCITY | = | 1.9120564 | KM/SEC | TRUE ANOMALY | = 0.9414998 DEG |
| SCALE FACTOR (HIGH) | = | 0.0115925 | M/KM | TILT DISTANCE (HIGH) | = 133.4115753 MM |
| SCALE FACTOR (LOW) | = | 0.0015203 | M/KM | TILT DISTANCE (LOW) | = 17.4965999 MM |
| IMAGE MOTION COMPENSATION (V/H) | = | 0.0363336 | RAD/SEC | SWING ANGLE | = 2.3372380 DEG |
| EMISSION ANGLE | = | 12.7073826 | DEG | INCIDENCE ANGLE | = 72.6021461 DEG |
| PHASE ANGLE | = | 68.1570120 | DEG | NORTH DEVIATION ANGLE | = 338.5134773 DEG |
| TILT ANGLE | = | 12.3367634 | DEG | RESOLUTION CONSTANT | = 1.1418595 MTR |
| TILT AZIMUTH | = | 203.2977676 | DEG | SUN AZIMUTH AT PRINCIPAL GND PT | = 90.7869577 DEG |
| SUN ANGLE AT NADIR | = | 72.4605427 | DEG | SUN ARC AT NADIR | = 2198.1190796 KM |
| LONGITUDE DISTANCE TO TARGET | = | -0.5700307 | DEG | LATITUDE DISTANCE TO TARGET | = 0.4735472 DEG |
| LONGITUDE ARC LENGTH TO TARGET | = | -17.2921050 | KM | LATITUDE ARC LENGTH TO TARGET | = 14.3652407 KM |
| FORWARD OVERLAP RATIO | = | 3.6333232 | PCT | SIDE OVERLAP RATIO | = 0. PCT |
| TIME BETWEEN PHOTOS | = | 2.3999870 | SEC | ALPHA | = 4.0396230 DEG. |

| | X | Y | Z | MAGNITUDE (KM) |
|---|---|---|---|---|
| DIRECTION COSINES TO TARGET | -0.44496387 | 0.86683172 | -0.22496649 | 56.20161915 |
| CAMERA AXIS | -0.76097711 | 0.62781896 | -0.16357623 | 52.62025452 |
| C1 | -0.69987300 | 0.71412149 | -0.01443168 | 51.43971252 |
| C2 | -0.73992983 | 0.58099119 | -0.33904733 | 55.78070068 |
| C3 | -0.79664484 | 0.52053101 | -0.30725309 | 55.82913208 |
| C4 | -0.75658803 | 0.65366130 | 0.01736254 | 51.48077393 |

| | X | Y | Z | X DOT | Y DOT | Z DOT |
|---|---|---|---|---|---|---|
| STATE VECTOR (1950.0) | -306.7906113 | -1605.3761444 | -728.5670242 | 1.7760296 | -0.0269496 | -0.7078238 |

LONG -43.8357 DEG
LATI -1.8274 DEG

LONG -44.2559 DEG
LATI -3.2305 DEG

* 44.42744 KM *
(1) (2)

LOW RESOLUTION

33.24990 KM 40.02430 KM

(4) (3)
* 44.73315 KM *

LONG -44.8587 DEG
LATI -1.4328 DEG

LONG -45.4921 DEG
LATI -2.7647 DEG

LONG -44.4033 DEG
LATI -1.9904 DEG

LONG -44.6270 DEG
LATI -2.5898 DEG

* 19.40777 KM *
(1) (2)

HIGH RESOLUTION

4.56911 KM 4.95491 KM

(4) (3)
* 19.42478 KM *

LONG -44.5440 DEG
LATI -1.9364 DEG

LONG -44.7798 DEG
LATI -2.5318 DEG

LOW RESOLUTION 186

| INDEX | LONGITUDE | LATITUDE |
|---|---|---|
| 1 | -43.8356853 | -1.8273940 |
| 2 | -43.8709464 | -1.9435610 |
| 3 | -43.9056129 | -2.0580427 |
| 4 | -43.9400473 | -2.1720437 |
| 5 | -43.9746151 | -2.2867413 |
| 6 | -44.0096707 | -2.4033463 |
| 7 | -44.0456009 | -2.5231495 |
| 8 | -44.0828290 | -2.6475887 |
| 9 | -44.1218328 | -2.7783203 |
| 10 | -44.1631927 | -2.9173197 |
| 11 | -44.2075996 | -3.0670196 |
| 12 | -44.2559471 | -3.2305095 |
| 13 | -44.3739929 | -3.1850999 |
| 14 | -44.4881291 | -3.1413815 |
| 15 | -44.5993929 | -3.0989387 |
| 16 | -44.7087169 | -3.0574061 |
| 17 | -44.8169751 | -3.0164429 |
| 18 | -44.9250050 | -2.9757307 |
| 19 | -45.0336390 | -2.9349561 |
| 20 | -45.1437244 | -2.8938060 |
| 21 | -45.2561631 | -2.8519523 |
| 22 | -45.3719249 | -2.8090467 |
| 23 | -45.4921055 | -2.7647034 |
| 24 | -45.4176016 | -2.6098033 |
| 25 | -45.3495526 | -2.4679053 |
| 26 | -45.2865062 | -2.3360946 |
| 27 | -45.2273297 | -2.2120728 |
| 28 | -45.1711102 | -2.0939729 |
| 29 | -45.1170869 | -1.9802298 |
| 30 | -45.0645971 | -1.8694825 |
| 31 | -45.0130563 | -1.7605051 |
| 32 | -44.9619155 | -1.6521493 |
| 33 | -44.9106412 | -1.5432932 |
| 34 | -44.8587008 | -1.4327952 |
| 35 | -44.7597828 | -1.4711536 |
| 36 | -44.6643476 | -1.5081194 |
| 37 | -44.5715256 | -1.5440360 |
| 38 | -44.4805303 | -1.5792063 |
| 39 | -44.3906450 | -1.6139139 |
| 40 | -44.3011765 | -1.6484243 |
| 41 | -44.2114482 | -1.6829979 |
| 42 | -44.1207776 | -1.7178984 |
| 43 | -44.0284538 | -1.7533992 |
| 44 | -43.9337053 | -1.7897896 |

HIGH RESOLUTION 186

| INDEX | LONGITUDE | LATITUDE |
|---|---|---|
| 1 | -44.4032602 | -1.9903939 |
| 2 | -44.4224501 | -2.0417911 |
| 3 | -44.4417248 | -2.0934316 |
| 4 | -44.4611325 | -2.1454307 |
| 5 | -44.4807181 | -2.1979079 |
| 6 | -44.5005293 | -2.2509853 |
| 7 | -44.5206132 | -2.3047918 |
| 8 | -44.5410151 | -2.3594623 |
| 9 | -44.5617962 | -2.4151429 |
| 10 | -44.5830073 | -2.4719871 |
| 11 | -44.6047168 | -2.5301599 |
| 12 | -44.6269903 | -2.5898437 |
| 13 | -44.6498863 | -2.5845598 |
| 14 | -44.6547751 | -2.5792800 |
| 15 | -44.6686578 | -2.5740037 |
| 16 | -44.6825433 | -2.5687291 |
| 17 | -44.6964259 | -2.5634562 |
| 18 | -44.7103081 | -2.5581850 |
| 19 | -44.7241974 | -2.5529129 |
| 20 | -44.7380900 | -2.5476400 |
| 21 | -44.7519894 | -2.5423671 |
| 22 | -44.7659025 | -2.5370916 |
| 23 | -44.7798257 | -2.5318128 |
| 24 | -44.7563162 | -2.4725412 |
| 25 | -44.7334080 | -2.4147672 |
| 26 | -44.7110286 | -2.3583123 |
| 27 | -44.6891108 | -2.3030108 |
| 28 | -44.6675954 | -2.2487108 |
| 29 | -44.6464252 | -2.1952689 |
| 30 | -44.6255488 | -2.1425492 |
| 31 | -44.6049113 | -2.0904255 |
| 32 | -44.5844655 | -2.0387747 |
| 33 | -44.5641627 | -1.9874808 |
| 34 | -44.5439625 | -1.9364252 |
| 35 | -44.5311489 | -1.9413404 |
| 36 | -44.5183458 | -1.9462513 |
| 37 | -44.5055494 | -1.9511596 |
| 38 | -44.4927630 | -1.9560654 |
| 39 | -44.4799771 | -1.9609686 |
| 40 | -44.4671946 | -1.9658710 |
| 41 | -44.4544115 | -1.9707742 |
| 42 | -44.4416323 | -1.9756766 |
| 43 | -44.4288464 | -1.9805807 |
| 44 | -44.4160566 | -1.9854864 |

**********
* PHOTO FRAME NUMBER 3 OF 16 *
**********

## FRAME 187

| | YEAR | MONTH | DAY | HOUR | MINUTE | SECOND |
|---|---|---|---|---|---|---|
| GMT | 67 | 2 | 22 | 5 | 23 | 57.900 |

| | | | | | |
|---|---|---|---|---|---|
| LONGITUDE OF NADIR POINT | = | -44.2998657 | DEG | LATITUDE OF NADIR POINT | = | -1.9613562 | DEG |
| LONG OF CAMERA AXIS INTERSECT | = | -44.4425168 | DEG | LATI OF CAMERA AXIS INTERSECT | = | -2.3034215 | DEG |
| SPACECRAFT RADIUS | = | 1789.4792023 | KM | SPACECRAFT ALTITUDE | = | 51.3892559 | KM |
| MEAN ALTITUDE RATE | = | 0.0091030 | KM/SEC | TIME FROM PERIAPSIS | = | 17.7760711 | SEC |
| HORIZONTAL VELOCITY | = | 1.9120350 | KM/SEC | TRUE ANOMALY | = | 1.0883179 | DEG |
| SCALE FACTOR (HIGH) | = | 0.0115882 | M/KM | TILT DISTANCE (HIGH) | = | 133.3466778 | MM |
| SCALE FACTOR (LOW) | = | 0.0015198 | M/KM | TILT DISTANCE (LOW) | = | 17.4880888 | MM |
| IMAGE MOTION COMPENSATION (V/H) | = | 0.0363206 | RAD/SEC | SWING ANGLE | = | 1.6500456 | DEG |
| EMISSION ANGLE | = | 12.7015262 | DEG | INCIDENCE ANGLE | = | 72.4600039 | DEG |
| PHASE ANGLE | = | 68.1570120 | DEG | NORTH DEVIATION ANGLE | = | 338.5144043 | DEG |
| TILT ANGLE | = | 12.3309460 | DEG | RESOLUTION CONSTANT | = | 1.1422867 | MTR |
| TILT AZIMUTH | = | 202.6218014 | DEG | SUN AZIMUTH AT PRINCIPAL GNC PT | = | 90.7650785 | DEG |
| SUN ANGLE AT NADIR | = | 72.3223362 | DEG | SUN ARC AT NADIR | = | 2193.9265137 | KM |
| LONGITUDE DISTANCE TO TARGET | = | -0.4328656 | DEG | LATITUDE DISTANCE TO TARGET | = | 0.4216437 | DEG |
| LONGITUDE ARC LENGTH TO TARGET | = | -13.1311488 | KM | LATITUDE ARC LENGTH TO TARGET | = | 12.7907289 | KM |
| FORWARD OVERLAP RATIO | = | 3.7089168 | PCT | SIDE OVERLAP RATIO | = | 0. | PCT |
| TIME BETWEEN PHOTOS | = | 2.4001479 | SEC | ALPHA | = | 3.8910364 | DEG. |

| DIRECTION COSINES TO TARGET | X | Y | Z | MAGNITUDE (KM) |
|---|---|---|---|---|
| CAMERA AXIS | -0.51193734 | 0.83500794 | -0.20169759 | 54.64933586 |
| C1 | -0.76097338 | 0.62782351 | -0.16357614 | 52.63993835 |
| C2 | -0.69986875 | 0.71412566 | -0.01443159 | 51.46511841 |
| C3 | -0.73992638 | 0.58099563 | -0.33904725 | 55.80856323 |
| C4 | -0.79664175 | 0.52053577 | -0.30725301 | 55.84274292 |
| | -0.75658415 | 0.65366580 | 0.01736263 | 51.49409485 |

| | X | Y | Z | X DOT | Y DOT | Z DOT |
|---|---|---|---|---|---|---|
| STATE VECTOR (1950.0) | -302.5273972 | -1605.4368591 | -730.2639999 | 1.7766556 | -0.0236521 | -0.7063263 |

LONG -43.6937 DEG
LATI -1.8807 DEG

LONG -44.1143 DEG
LATI -3.2858 DEG

* 44.48867 KM *
(1) (2)

LOW RESOLUTION

33.26170 KM 40.03760 KM

(4) (3)
* 44.70449 KM *

LONG -44.7173 DEG
LATI -1.4865 DEG

LONG -45.3501 DEG
LATI -2.8177 DEG

LONG -44.2620 DEG
LATI -2.0439 DEG

LONG -44.4858 DEG
LATI -2.6436 DEG

* 19.41747 KM *
(1) (2)

HIGH RESOLUTION

4.57074 KM 4.95664 KM

(4) (3)
* 19.42948 KM *

LONG -44.4026 DEG
LATI -1.9899 DEG

LONG -44.6386 DEG
LATI -2.5854 DEG

LOW RESOLUTION 187

| INDEX | LONGITUDE | LATITUDE |
|---|---|---|
| 1 | -43.6936927 | -1.8806815 |
| 2 | -43.7289805 | -1.9969945 |
| 3 | -43.7636714 | -2.1116247 |
| 4 | -43.7981362 | -2.2257759 |
| 5 | -43.8327312 | -2.3406281 |
| 6 | -43.8678179 | -2.4573927 |
| 7 | -43.9037757 | -2.5773658 |
| 8 | -43.9410343 | -2.7019826 |
| 9 | -43.9800720 | -2.8329080 |
| 10 | -44.0214629 | -2.9721183 |
| 11 | -44.0659142 | -3.1220512 |
| 12 | -44.1142993 | -3.2858059 |
| 13 | -44.2325363 | -3.2400855 |
| 14 | -44.3468156 | -3.1960845 |
| 15 | -44.4581718 | -3.1533839 |
| 16 | -44.5675468 | -3.1116147 |
| 17 | -44.6758156 | -3.0704329 |
| 18 | -44.7838149 | -3.0295158 |
| 19 | -44.8923807 | -2.9885526 |
| 20 | -45.0023532 | -2.9472249 |
| 21 | -45.1146350 | -2.9052064 |
| 22 | -45.2301879 | -2.8621463 |
| 23 | -45.3501024 | -2.8176605 |
| 24 | -45.2756906 | -2.6628738 |
| 25 | -45.2077169 | -2.5210731 |
| 26 | -45.1447392 | -2.3893461 |
| 27 | -45.0856271 | -2.2653995 |
| 28 | -45.0294623 | -2.1473679 |
| 29 | -44.9754901 | -2.0336854 |
| 30 | -44.9230480 | -1.9229945 |
| 31 | -44.8715487 | -1.8140692 |
| 32 | -44.8204484 | -1.7057620 |
| 33 | -44.7692151 | -1.5969520 |
| 34 | -44.7173123 | -1.4864976 |
| 35 | -44.6184936 | -1.5247577 |
| 36 | -44.5231199 | -1.5616399 |
| 37 | -44.4303250 | -1.5974856 |
| 38 | -44.3393335 | -1.6325987 |
| 39 | -44.2494240 | -1.6672585 |
| 40 | -44.1599007 | -1.7017331 |
| 41 | -44.0700941 | -1.7362810 |
| 42 | -43.9793139 | -1.7711662 |
| 43 | -43.8868470 | -1.8066610 |
| 44 | -43.7919245 | -1.8430582 |

HIGH RESOLUTION 187

| INDEX | LONGITUDE | LATITUDE |
|---|---|---|
| 1 | -44.2620053 | -2.0438700 |
| 2 | -44.2811980 | -2.0952937 |
| 3 | -44.3004799 | -2.1469623 |
| 4 | -44.3198948 | -2.1989888 |
| 5 | -44.3394871 | -2.2514941 |
| 6 | -44.3593016 | -2.3045988 |
| 7 | -44.3793886 | -2.3584344 |
| 8 | -44.3997974 | -2.4131357 |
| 9 | -44.4205818 | -2.4688452 |
| 10 | -44.4418030 | -2.5257211 |
| 11 | -44.4635162 | -2.5839263 |
| 12 | -44.4857931 | -2.6436417 |
| 13 | -44.4996924 | -2.6383407 |
| 14 | -44.5135851 | -2.6330447 |
| 15 | -44.5274711 | -2.6277505 |
| 16 | -44.5413566 | -2.6224596 |
| 17 | -44.5552392 | -2.6171713 |
| 18 | -44.5691247 | -2.6118822 |
| 19 | -44.5830107 | -2.6065948 |
| 20 | -44.5969033 | -2.6013082 |
| 21 | -44.6108027 | -2.5960191 |
| 22 | -44.6247087 | -2.5907283 |
| 23 | -44.6386290 | -2.5854349 |
| 24 | -44.6151195 | -2.5261471 |
| 25 | -44.5922108 | -2.4683569 |
| 26 | -44.5698318 | -2.4118857 |
| 27 | -44.5479136 | -2.3565697 |
| 28 | -44.5264020 | -2.3022552 |
| 29 | -44.5052319 | -2.2487971 |
| 30 | -44.4843521 | -2.1960637 |
| 31 | -44.4637146 | -2.1439246 |
| 32 | -44.4432650 | -2.0922585 |
| 33 | -44.4229655 | -2.0409493 |
| 34 | -44.4027619 | -1.9898808 |
| 35 | -44.3899450 | -1.9947951 |
| 36 | -44.3771386 | -1.9997077 |
| 37 | -44.3643422 | -2.0046178 |
| 38 | -44.3515491 | -2.0095253 |
| 39 | -44.3387594 | -2.0144294 |
| 40 | -44.3259702 | -2.0193343 |
| 41 | -44.3131838 | -2.0242392 |
| 42 | -44.3003979 | -2.0291441 |
| 43 | -44.2876048 | -2.0340508 |
| 44 | -44.2748084 | -2.0389591 |

**********
* PHOTO FRAME NUMBER 4 OF 16 *
**********

## FRAME 188

| | YEAR | MONTH | DAY | HOUR | MINUTE | SECOND |
|---|---|---|---|---|---|---|
| GMT | 67 | 2 | 22 | 5 | 24 | 0.300 |

| | | | | | |
|---|---|---|---|---|---|
| LONGITUDE OF NADIR POINT | = | -44.1627502 DEG | LATITUDE OF NADIR POINT | = | -2.0132273 DEG |
| LONG OF CAMERA AXIS INTERSECT | = | -44.3013711 DEG | LATI OF CAMERA AXIS INTERSECT | = | -2.3569890 DEG |
| SPACECRAFT RADIUS | = | 1789.5025177 KM | SPACECRAFT ALTITUDE | = | 51.4125214 KM |
| MEAN ALTITUDE RATE | = | 0.0193303 KM/SEC | TIME FROM PERIAPSIS | = | 20.1732819 SEC |
| HORIZONTAL VELOCITY | = | 1.9120105 KM/SEC | TRUE ANOMALY | = | 1.2350731 DEG |
| SCALE FACTOR (HIGH) | = | 0.0115831 M/KM | TILT DISTANCE (HIGH) | = | 133.3010025 MM |
| SCALE FACTOR (LOW) | = | 0.0015191 M/KM | TILT DISTANCE (LOW) | = | 17.4820986 MM |
| IMAGE MOTION COMPENSATION (V/H) | = | 0.0363050 RAD/SEC | SWING ANGLE | = | 0.9625644 DEG |
| EMISSION ANGLE | = | 12.6974775 DEG | INCIDENCE ANGLE | = | 72.3179436 DEG |
| PHASE ANGLE | = | 68.1570139 DEG | NORTH DEVIATION ANGLE | = | 338.5156021 DEG |
| TILT ANGLE | = | 12.3268514 DEG | RESOLUTION CONSTANT | = | 1.1427870 MTR |
| TILT AZIMUTH | = | 201.9454632 DEG | SUN AZIMUTH AT PRINCIPAL GND PT | = | 90.7429132 DEG |
| SUN ANGLE AT NADIR | = | 72.1842031 DEG | SUN ARC AT NADIR | = | 2189.7362061 KM |
| LONGITUDE DISTANCE TO TARGET | = | -0.2957501 DEG | LATITUDE DISTANCE TO TARGET | = | 0.3697727 DEG |
| LONGITUDE ARC LENGTH TO TARGET | = | -8.9716967 KM | LATITUDE ARC LENGTH TO TARGET | = | 11.2172012 KM |
| FORWARD OVERLAP RATIO | = | 3.7861440 PCT | SIDE OVERLAP RATIO | = | 0. PCT |
| TIME BETWEEN PHOTOS | = | 2.3999870 SEC | ALPHA | = | 3.7424667 DEG. |

| | X | Y | Z | MAGNITUDE (KM) |
|---|---|---|---|---|
| DIRECTION COSINES TO TARGET | -0.57897756 | 0.79613023 | -0.17595921 | 53.43721724 |
| CAMERA AXIS | -0.76096968 | 0.62782801 | -0.16357607 | 52.66299438 |
| C1 | -0.69986454 | 0.71412980 | -0.01443151 | 51.49380493 |
| C2 | -0.73992296 | 0.58100002 | -0.33904719 | 55.83999634 |
| C3 | -0.79663869 | 0.52054050 | -0.30725295 | 55.85993958 |
| C4 | -0.75658028 | 0.65367027 | 0.01736270 | 51.51072693 |

| | X | Y | Z | X DOT | Y DOT | Z DOT |
|---|---|---|---|---|---|---|
| STATE VECTOR (1950.0) | -298.2644539 | -1605.4896545 | -731.9566803 | 1.7772725 | -0.0203560 | -0.7048260 |

LONG -43.5517 DEG
LATI -1.9339 DEG

LONG -43.9727 DEG
LATI -3.3412 DEG

(1) * 44.55289 KM * (2)

LOW RESOLUTION

33.27591 KM 40.05403 KM

(4) * 44.67881 KM * (3)

LONG -44.5760 DEG
LATI -1.5401 DEG

LONG -45.2082 DEG
LATI -2.8706 DEG

LONG -44.1208 DEG
LATI -2.0973 DEG

LONG -44.3447 DEG
LATI -2.6974 DEG

(1) * 19.42843 KM * (2)

HIGH RESOLUTION

4.57269 KM 4.95872 KM

(4) * 19.43543 KM * (3)

LONG -44.2616 DEG
LATI -2.0433 DEG

LONG -44.4975 DEG
LATI -2.6391 DEG

LOW RESOLUTION 188

| INDEX | LONGITUDE | LATITUDE |
|---|---|---|
| 1 | -43.5516996 | -1.9339288 |
| 2 | -43.5870185 | -2.0503971 |
| 3 | -43.6217399 | -2.1651827 |
| 4 | -43.6562324 | -2.2794919 |
| 5 | -43.6908579 | -2.3945063 |
| 6 | -43.7259722 | -2.5114392 |
| 7 | -43.7619638 | -2.6315882 |
| 8 | -43.7992530 | -2.7563945 |
| 9 | -43.8383255 | -2.8875205 |
| 10 | -43.8797574 | -3.0269502 |
| 11 | -43.9242458 | -3.1771282 |
| 12 | -43.9726787 | -3.3411586 |
| 13 | -44.0911174 | -3.2951223 |
| 14 | -44.2055469 | -3.2508362 |
| 15 | -44.3170018 | -3.2078743 |
| 16 | -44.4264355 | -3.1658643 |
| 17 | -44.5347247 | -3.1244597 |
| 18 | -44.6427031 | -3.0833377 |
| 19 | -44.7512007 | -3.0421816 |
| 20 | -44.8610744 | -3.0006737 |
| 21 | -44.9732056 | -2.9584878 |
| 22 | -45.0885606 | -2.9152724 |
| 23 | -45.2082219 | -2.8706422 |
| 24 | -45.1338959 | -2.7159581 |
| 25 | -45.0659938 | -2.5742436 |
| 26 | -45.0030808 | -2.4425934 |
| 27 | -44.9440236 | -2.3187117 |
| 28 | -44.8879137 | -2.2007398 |
| 29 | -44.8339858 | -2.0871111 |
| 30 | -44.7815881 | -1.9764697 |
| 31 | -44.7301292 | -1.8675880 |
| 32 | -44.6790671 | -1.7593235 |
| 33 | -44.6278677 | -1.6505527 |
| 34 | -44.5760026 | -1.5401351 |
| 35 | -44.4772725 | -1.5782970 |
| 36 | -44.3819537 | -1.6150989 |
| 37 | -44.2891827 | -1.6508772 |
| 38 | -44.1981874 | -1.6859348 |
| 39 | -44.1082439 | -1.7205511 |
| 40 | -44.0186629 | -1.7549915 |
| 41 | -43.9287672 | -1.7895164 |
| 42 | -43.8378711 | -1.8243870 |
| 43 | -43.7452569 | -1.8598784 |
| 44 | -43.6501503 | -1.8962859 |

HIGH RESOLUTION 188

| INDEX | LONGITUDE | LATITUDE |
|---|---|---|
| 1 | -44.1207948 | -2.0973171 |
| 2 | -44.1399908 | -2.1487715 |
| 3 | -44.1592793 | -2.2004701 |
| 4 | -44.1787009 | -2.2525280 |
| 5 | -44.1983004 | -2.3050633 |
| 6 | -44.2181215 | -2.3582013 |
| 7 | -44.2382159 | -2.4120685 |
| 8 | -44.2586312 | -2.4668030 |
| 9 | -44.2794223 | -2.5225476 |
| 10 | -44.3006506 | -2.5794576 |
| 11 | -44.3223705 | -2.6376969 |
| 12 | -44.3446541 | -2.6974500 |
| 13 | -44.3585567 | -2.6921318 |
| 14 | -44.3724527 | -2.6868171 |
| 15 | -44.3863420 | -2.6815075 |
| 16 | -44.4002280 | -2.6761987 |
| 17 | -44.4141135 | -2.6708933 |
| 18 | -44.4279995 | -2.6655897 |
| 19 | -44.4418888 | -2.6602861 |
| 20 | -44.4557776 | -2.6549816 |
| 21 | -44.4696774 | -2.6496788 |
| 22 | -44.4835835 | -2.6443726 |
| 23 | -44.4974999 | -2.6390638 |
| 24 | -44.4739904 | -2.5797556 |
| 25 | -44.4510822 | -2.5219457 |
| 26 | -44.4286995 | -2.4654558 |
| 27 | -44.4067812 | -2.4101201 |
| 28 | -44.3852630 | -2.3557868 |
| 29 | -44.3640928 | -2.3023107 |
| 30 | -44.3432131 | -2.2495586 |
| 31 | -44.3225722 | -2.1974007 |
| 32 | -44.3021226 | -2.1457184 |
| 33 | -44.2818165 | -2.0943904 |
| 34 | -44.2616124 | -2.0433023 |
| 35 | -44.2487922 | -2.0482191 |
| 36 | -44.2359858 | -2.0531326 |
| 37 | -44.2231827 | -2.0580435 |
| 38 | -44.2103829 | -2.0629536 |
| 39 | -44.1975899 | -2.0678602 |
| 40 | -44.1847968 | -2.0727669 |
| 41 | -44.1720037 | -2.0776744 |
| 42 | -44.1592073 | -2.0825818 |
| 43 | -44.1464076 | -2.0874919 |
| 44 | -44.1336045 | -2.0924028 |

**********
* PHOTO FRAME NUMBER 5 OF 16 *
**********

## FRAME 189

| | YEAR | MONTH | DAY | HOUR | MINUTE | SECOND |
|---|---|---|---|---|---|---|
| GMT | 67 | 2 | 22 | 5 | 24 | 2.609 |

| | | | | | |
|---|---|---|---|---|---|
| LONGITUDE OF NADIR POINT | = | -44.0312843 | DEG | LATITUDE OF NADIR POINT | = | -2.0629450 | DEG |
| LONG OF CAMERA AXIS INTERSECT | = | -44.1660447 | DEG | LATI OF CAMERA AXIS INTERSECT | = | -2.4083546 | DEG |
| SPACECRAFT RADIUS | = | 1789.5276337 | KM | SPACECRAFT ALTITUDE | = | 51.4376373 | KM |
| MEAN ALTITUDE RATE | = | 0.0115070 | KM/SEC | TIME FROM PERIAPSIS | = | 22.4716229 | SEC |
| HORIZONTAL VELOCITY | = | 1.9119841 | KM/SEC | TRUE ANOMALY | = | 1.3757720 | DEG |
| SCALE FACTOR (HIGH) | = | 0.0115775 | M/KM | TILT DISTANCE (HIGH) | = | 133.2751942 | MM |
| SCALE FACTOR (LOW) | = | 0.0015184 | M/KM | TILT DISTANCE (LOW) | = | 17.4787140 | MM |
| IMAGE MOTION COMPENSATION (V/H) | = | 0.0362878 | RAD/SEC | SWING ANGLE | = | 0.3032212 | DEG |
| EMISSION ANGLE | = | 12.6952730 | DEG | INCIDENCE ANGLE | = | 72.1817694 | DEG |
| PHASE ANGLE | = | 68.1570139 | DEG | NORTH DEVIATION ANGLE | = | 338.5170059 | DEG |
| TILT ANGLE | = | 12.3245378 | DEG | RESOLUTION CONSTANT | = | 1.1433353 | MTR |
| TILT AZIMUTH | = | 201.2965984 | DEG | SUN AZIMUTH AT PRINCIPAL GND PT | = | 90.7213869 | DEG |
| SUN ANGLE AT NADIR | = | 72.0517864 | DEG | SUN ARC AT NADIR | = | 2185.7192993 | KM |
| LONGITUDE DISTANCE TO TARGET | = | -0.1642842 | DEG | LATITUDE DISTANCE TO TARGET | = | 0.3200549 | DEG |
| LONGITUDE ARC LENGTH TO TARGET | = | -4.9836267 | KM | LATITUDE ARC LENGTH TO TARGET | = | 9.7089927 | KM |
| FORWARD OVERLAP RATIO | = | 7.7947718 | PCT | SIDE OVERLAP RATIO | = | 0. | PCT |
| TIME BETWEEN PHOTOS | = | 2.2998869 | SEC | ALPHA | = | 3.5999964 | DEG. |

| DIRECTION COSINES TO TARGET | X | Y | Z | MAGNITUDE (KM) |
|---|---|---|---|---|
| CAMERA AXIS | -0.64187703 | 0.75215326 | -0.14919568 | 52.61570358 |
| C1 | -0.76096616 | 0.62783229 | -0.16357600 | 52.68826294 |
| C2 | -0.69986054 | 0.71413371 | -0.01443143 | 51.52442932 |
| C3 | -0.73991971 | 0.58100421 | -0.33904711 | 55.87350464 |
| C4 | -0.79663579 | 0.52054500 | -0.30725289 | 55.87979126 |
| | -0.75657661 | 0.65367450 | 0.01736278 | 51.52975464 |

| STATE VECTOR (1950.0) | X | Y | Z | X DOT | Y DOT | Z DOT |
|---|---|---|---|---|---|---|
| | -294.1760521 | -1605.5328369 | -733.5761261 | 1.7778557 | -0.0171959 | -0.7033843 |

LONG -43.4155 DEG
LATI -1.9853 DEG

LONG -43.8369 DEG
LATI -3.3943 DEG

(1) * 44.61727 KM * (2)

LOW RESOLUTION

33.29183 KM 40.07267 KM

(4) * 44.65695 KM * (3)

LONG -44.4405 DEG
LATI -1.5915 DEG

LONG -45.0723 DEG
LATI -2.9215 DEG

LONG -43.9854 DEG
LATI -2.1486 DEG

LONG -44.2093 DEG
LATI -2.7491 DEG

(1) * 19.44009 KM * (2)

HIGH RESOLUTION

4.57487 KM 4.96106 KM

(4) * 19.44230 KM * (3)

LONG -44.1263 DEG
LATI -2.0945 DEG

LONG -44.3622 DEG
LATI -2.6905 DEG

LOW RESOLUTION 189

| INDEX | LONGITUDE | LATITUDE |
|---|---|---|
| 1 | -43.4155159 | -1.9849631 |
| 2 | -43.4508624 | -2.1015860 |
| 3 | -43.4856143 | -2.2165287 |
| 4 | -43.5201411 | -2.3309967 |
| 5 | -43.5547938 | -2.4461724 |
| 6 | -43.5899386 | -2.5632743 |
| 7 | -43.6259608 | -2.6836009 |
| 8 | -43.6632848 | -2.8085951 |
| 9 | -43.7023945 | -2.9399234 |
| 10 | -43.7438636 | -3.0795743 |
| 11 | -43.7883930 | -3.2299955 |
| 12 | -43.8368707 | -3.3942991 |
| 13 | -43.9555144 | -3.3479589 |
| 14 | -44.0700908 | -3.3033945 |
| 15 | -44.1816549 | -3.2601790 |
| 16 | -44.2911530 | -3.2179351 |
| 17 | -44.3994627 | -3.1763145 |
| 18 | -44.5074277 | -3.1349919 |
| 19 | -44.6158776 | -3.0936479 |
| 20 | -44.7256556 | -3.0519667 |
| 21 | -44.8376503 | -3.0096178 |
| 22 | -44.9528279 | -2.9662495 |
| 23 | -45.0722537 | -2.9214785 |
| 24 | -44.9980025 | -2.7668831 |
| 25 | -44.9301686 | -2.6252438 |
| 26 | -44.8673105 | -2.4936568 |
| 27 | -44.8083043 | -2.3698331 |
| 28 | -44.7522388 | -2.2519099 |
| 29 | -44.6983552 | -2.1383264 |
| 30 | -44.6459951 | -2.0277243 |
| 31 | -44.5945706 | -1.9188793 |
| 32 | -44.5435424 | -1.8106481 |
| 33 | -44.4923773 | -1.7019081 |
| 34 | -44.4405398 | -1.5915177 |
| 35 | -44.3818880 | -1.6295900 |
| 36 | -44.2466168 | -1.6663168 |
| 37 | -44.1538663 | -1.7020319 |
| 38 | -44.0628610 | -1.7370392 |
| 39 | -43.9728765 | -1.7716144 |
| 40 | -43.8832302 | -1.8060241 |
| 41 | -43.7932458 | -1.8405285 |
| 42 | -43.7022338 | -1.8753889 |
| 43 | -43.6094694 | -1.9108811 |
| 44 | -43.5141850 | -1.9472971 |

HIGH RESOLUTION 189

| INDEX | LONGITUDE | LATITUDE |
|---|---|---|
| 1 | -43.9853930 | -2.1485521 |
| 2 | -44.0045996 | -2.2000389 |
| 3 | -44.0238948 | -2.2517699 |
| 4 | -44.0433230 | -2.3038612 |
| 5 | -44.0629292 | -2.3564297 |
| 6 | -44.0827608 | -2.4096010 |
| 7 | -44.1028619 | -2.4635040 |
| 8 | -44.1232843 | -2.5182719 |
| 9 | -44.1440854 | -2.5740532 |
| 10 | -44.1653171 | -2.6309991 |
| 11 | -44.1870475 | -2.6892776 |
| 12 | -44.2093377 | -2.7490691 |
| 13 | -44.2232475 | -2.7437322 |
| 14 | -44.2371469 | -2.7384012 |
| 15 | -44.2510395 | -2.7330737 |
| 16 | -44.2649288 | -2.7277496 |
| 17 | -44.2788177 | -2.7224288 |
| 18 | -44.2927036 | -2.7171081 |
| 19 | -44.3065929 | -2.7117891 |
| 20 | -44.3204856 | -2.7064701 |
| 21 | -44.3343849 | -2.7011502 |
| 22 | -44.3482876 | -2.6958286 |
| 23 | -44.3622041 | -2.6905062 |
| 24 | -44.3386912 | -2.6311741 |
| 25 | -44.3157792 | -2.5733429 |
| 26 | -44.2933969 | -2.5168307 |
| 27 | -44.2714753 | -2.4614738 |
| 28 | -44.2499571 | -2.4071183 |
| 29 | -44.2287798 | -2.3536217 |
| 30 | -44.2078967 | -2.3008482 |
| 31 | -44.1872525 | -2.2486707 |
| 32 | -44.1668029 | -2.1969670 |
| 33 | -44.1464930 | -2.1456185 |
| 34 | -44.1262827 | -2.0945099 |
| 35 | -44.1134624 | -2.0994276 |
| 36 | -44.1006455 | -2.1043437 |
| 37 | -44.0878391 | -2.1092563 |
| 38 | -44.0750356 | -2.1141672 |
| 39 | -44.0622358 | -2.1190772 |
| 40 | -44.0494361 | -2.1239865 |
| 41 | -44.0366364 | -2.1288965 |
| 42 | -44.0238333 | -2.1338074 |
| 43 | -44.0110264 | -2.1387192 |
| 44 | -43.9982133 | -2.1436343 |

**********
* PHOTO FRAME NUMBER 6 OF 16 *
********** **FRAME 190**

| | YEAR | MONTH | DAY | HOUR | MINUTE | SECOND |
|---|---|---|---|---|---|---|
| GMT | 67 | 2 | 22 | 5 | 24 | 5.009 |

| | | | | | | |
|---|---|---|---|---|---|---|
| LONGITUDE OF NADIR POINT | = | -43.8940468 | DEG | LATITUDE OF NADIR POINT | = | -2.1148323 DEG |
| LONG OF CAMERA AXIS INTERSECT | = | -44.0247793 | DEG | LATI OF CAMERA AXIS INTERSECT | = | -2.4619860 DEG |
| SPACECRAFT RADIUS | = | 1789.5567322 | KM | SPACECRAFT ALTITUDE | = | 51.4667358 KM |
| MEAN ALTITUDE RATE | = | 0.0127351 | KM/SEC | TIME FROM PERIAPSIS | = | 24.8707860 SEC |
| HORIZONTAL VELOCITY | = | 1.9119534 | KM/SEC | TRUE ANOMALY | = | 1.5226387 DEG |
| SCALE FACTOR (HIGH) | = | 0.0115710 | M/KM | TILT DISTANCE (HIGH) | = | 133.2671623 MM |
| SCALE FACTOR (LOW) | = | 0.0015175 | M/KM | TILT DISTANCE (LOW) | = | 17.4776607 MM |
| IMAGE MOTION COMPENSATION (V/H) | = | 0.0362673 | RAD/SEC | SWING ANGLE | = | 359.6147614 DEG |
| EMISSION ANGLE | = | 12.6947349 | DEG | INCIDENCE ANGLE | = | 72.0396385 DEG |
| PHASE ANGLE | = | 68.1570148 | DEG | NORTH DEVIATION ANGLE | = | 338.5187340 DEG |
| TILT ANGLE | = | 12.3238177 | DEG | RESOLUTION CONSTANT | = | 1.1439790 MTR |
| TILT AZIMUTH | = | 200.6189690 | DEG | SUN AZIMUTH AT PRINCIPAL GND PT | = | 90.6986246 DEG |
| SUN ANGLE AT NADIR | = | 71.9135752 | DEG | SUN ARC AT NADIR | = | 2181.5265808 KM |
| LONGITUDE DISTANCE TO TARGET | = | -0.0270467 | DEG | LATITUDE DISTANCE TO TARGET | = | 0.2681677 DEG |
| LONGITUDE ARC LENGTH TO TARGET | = | -0.8204717 | KM | LATITUDE ARC LENGTH TO TARGET | = | 8.1349728 KM |
| FORWARD OVERLAP RATIO | = | 3.8007177 | PCT | SIDE OVERLAP RATIO | = | 0. PCT |
| TIME BETWEEN PHOTOS | = | 2.3999870 | SEC | ALPHA | = | 3.4512284 DEG. |

| | X | Y | Z | MAGNITUDE (KM) |
|---|---|---|---|---|
| DIRECTION COSINES TO TARGET | -0.70447063 | 0.69960127 | -0.11949553 | 52.13106918 |
| CAMERA AXIS | -0.76096243 | 0.62783683 | -0.16357593 | 52.71792603 |
| C1 | -0.69985629 | 0.71413787 | -0.01443136 | 51.55963135 |
| C2 | -0.73991626 | 0.58100863 | -0.33904705 | 55.91201782 |
| C3 | -0.79663269 | 0.52054975 | -0.30725282 | 55.90403748 |
| C4 | -0.75657274 | 0.65367901 | 0.01736285 | 51.55285645 |

| | X | Y | Z | X DOT | Y DOT | Z DOT |
|---|---|---|---|---|---|---|
| STATE VECTOR (1950.0) | -289.9066963 | -1605.5701599 | -735.2631378 | 1.7784560 | -0.0138972 | -0.7018761 |

LONG -43.2733 DEG
LATI -2.0382 DEG

LONG -43.6951 DEG
LATI -3.4499 DEG

* 44.68745 KM *
(1) (2)

LOW RESOLUTION

33.31083 KM 40.09520 KM

(4) (3)
* 44.63699 KM *

LONG -44.2992 DEG
LATI -1.6451 DEG

LONG -44.9304 DEG
LATI -2.9746 DEG

LONG -43.8440 DEG
LATI -2.2020 DEG

LONG -44.0681 DEG
LATI -2.8030 DEG

* 19.45351 KM *
(1) (2)

HIGH RESOLUTION

4.57747 KM 4.96383 KM

(4) (3)
* 19.45070 KM *

LONG -43.9850 DEG
LATI -2.1480 DEG

LONG -44.2210 DEG
LATI -2.7442 DEG

LOW RESOLUTION 190

| INDEX | LONGITUDE | LATITUDE |
|---|---|---|
| 1 | -43.2733011 | -2.0382206 |
| 2 | -43.3086815 | -2.1550134 |
| 3 | -43.3434677 | -2.2701269 |
| 4 | -43.3780251 | -2.3847673 |
| 5 | -43.4127121 | -2.5001215 |
| 6 | -43.4478946 | -2.6174078 |
| 7 | -43.4839511 | -2.7379257 |
| 8 | -43.5213122 | -2.8631256 |
| 9 | -43.5604596 | -2.9946725 |
| 10 | -43.6019702 | -3.1345641 |
| 11 | -43.6465473 | -3.2852518 |
| 12 | -43.6950755 | -3.4498534 |
| 13 | -43.8139381 | -3.4031878 |
| 14 | -43.9286819 | -3.3583297 |
| 15 | -44.0403624 | -3.3148461 |
| 16 | -44.1499357 | -3.2723555 |
| 17 | -44.2582793 | -3.2305053 |
| 18 | -44.3662376 | -3.1889709 |
| 19 | -44.4746394 | -3.1474297 |
| 20 | -44.5843287 | -3.1055632 |
| 21 | -44.6961937 | -3.0630410 |
| 22 | -44.8111868 | -3.0195122 |
| 23 | -44.9303803 | -2.9745909 |
| 24 | -44.8562045 | -2.8200775 |
| 25 | -44.7884321 | -2.6785073 |
| 26 | -44.7256317 | -2.5469792 |
| 27 | -44.6666770 | -2.4232059 |
| 28 | -44.6106558 | -2.3053271 |
| 29 | -44.5568099 | -2.1917821 |
| 30 | -44.5044870 | -2.0812141 |
| 31 | -44.4531002 | -1.9724007 |
| 32 | -44.4021029 | -1.8641968 |
| 33 | -44.3509684 | -1.7554824 |
| 34 | -44.2991581 | -1.6451142 |
| 35 | -44.2005816 | -1.6830960 |
| 36 | -44.1053514 | -1.7197451 |
| 37 | -44.0126114 | -1.7553987 |
| 38 | -43.9215851 | -1.7903539 |
| 39 | -43.8315601 | -1.8248899 |
| 40 | -43.7418418 | -1.8592697 |
| 41 | -43.6517553 | -1.8937544 |
| 42 | -43.5606098 | -1.9286063 |
| 43 | -43.4676886 | -1.9640986 |
| 44 | -43.3722057 | -2.0005291 |

HIGH RESOLUTION 190

| INDEX | LONGITUDE | LATITUDE |
|---|---|---|
| 1 | -43.8440390 | -2.2020299 |
| 2 | -43.8632555 | -2.2535543 |
| 3 | -43.8825612 | -2.3053229 |
| 4 | -43.9019961 | -2.3574508 |
| 5 | -43.9216127 | -2.4100578 |
| 6 | -43.9414511 | -2.4632693 |
| 7 | -43.9615622 | -2.5172098 |
| 8 | -43.9819913 | -2.5720187 |
| 9 | -44.0027995 | -2.6278401 |
| 10 | -44.0240417 | -2.6848278 |
| 11 | -44.0457821 | -2.7431491 |
| 12 | -44.0680828 | -2.8029849 |
| 13 | -44.0819993 | -2.7976309 |
| 14 | -44.0959020 | -2.7922820 |
| 15 | -44.1098013 | -2.7869366 |
| 16 | -44.1236973 | -2.7815953 |
| 17 | -44.1375866 | -2.7762550 |
| 18 | -44.1514759 | -2.7709189 |
| 19 | -44.1653686 | -2.7655820 |
| 20 | -44.1792645 | -2.7602467 |
| 21 | -44.1931605 | -2.7549098 |
| 22 | -44.2070699 | -2.7495737 |
| 23 | -44.2209830 | -2.7442351 |
| 24 | -44.1974669 | -2.6848756 |
| 25 | -44.1745515 | -2.6270171 |
| 26 | -44.1521621 | -2.5704785 |
| 27 | -44.1302371 | -2.5150950 |
| 28 | -44.1087155 | -2.4607148 |
| 29 | -44.0875349 | -2.4071926 |
| 30 | -44.0666447 | -2.3543935 |
| 31 | -44.0459971 | -2.3021912 |
| 32 | -44.0255408 | -2.2504628 |
| 33 | -44.0052276 | -2.1990895 |
| 34 | -43.9850173 | -2.1479561 |
| 35 | -43.9721866 | -2.1528764 |
| 36 | -43.9593663 | -2.1577942 |
| 37 | -43.9465532 | -2.1627085 |
| 38 | -43.9337430 | -2.1676220 |
| 39 | -43.9209366 | -2.1725354 |
| 40 | -43.9081297 | -2.1774472 |
| 41 | -43.8953233 | -2.1823598 |
| 42 | -43.8825097 | -2.1872741 |
| 43 | -43.8696961 | -2.1921910 |
| 44 | -43.8568726 | -2.1971087 |

**********
* PHOTO FRAME NUMBER 7 OF 16 *
**********

## FRAME 191

| | YEAR | MONTH | DAY | HOUR | MINUTE | SECOND |
|---|---|---|---|---|---|---|
| GMT | 67 | 2 | 22 | 5 | 24 | 7.400 |

| | | | | | |
|---|---|---|---|---|---|
| LONGITUDE OF NADIR POINT | = | -43.7569122 | DEG | LATITUDE OF NADIR POINT = | -2.1666623 DEG |
| LONG OF CAMERA AXIS INTERSECT | = | -43.8836231 | DEG | LATI OF CAMERA AXIS INTERSECT = | -2.5155617 DEG |
| SPACECRAFT RADIUS | = | 1789.5887604 | KM | SPACECRAFT ALTITUDE = | 51.4987640 KM |
| MEAN ALTITUDE RATE | = | 0.0139621 | KM/SEC | TIME FROM PERIAPSIS = | 27.2679744 SEC |
| HORIZONTAL VELOCITY | = | 1.9119197 | KM/SEC | TRUE ANOMALY = | 1.6693794 DEG |
| SCALE FACTOR (HIGH) | = | 0.0115638 | M/KM | TILT DISTANCE (HIGH) = | 133.2782497 MM |
| SCALE FACTOR (LOW) | = | 0.0015166 | M/KM | TILT DISTANCE (LOW) = | 17.4791148 MM |
| IMAGE MOTION COMPENSATION (V/H) | = | 0.0362444 | RAD/SEC | SWING ANGLE = | 358.9268532 DEG |
| EMISSION ANGLE | = | 12.6959937 | DEG | INCIDENCE ANGLE = | 71.8976517 DEG |
| PHASE ANGLE | = | 68.1570158 | DEG | NORTH DEVIATION ANGLE = | 338.5207329 DEG |
| TILT ANGLE | = | 12.3248117 | DEG | RESOLUTION CONSTANT = | 1.1446962 MIR |
| TILT AZIMUTH | = | 199.9418259 | DEG | SUN AZIMUTH AT PRINCIPAL GND PT = | 90.6755877 DEG |
| SUN ANGLE AT NADIR | = | 71.7754965 | DEG | SUN ARC AT NADIR = | 2177.3379211 KM |
| LONGITUDE DISTANCE TO TARGET | = | 0.1100879 | DEG | LATITUDE DISTANCE TO TARGET = | 0.2163377 DEG |
| LONGITUDE ARC LENGTH TO TARGET | = | 3.3395589 | KM | LATITUDE ARC LENGTH TO TARGET = | 6.5626886 KM |
| FORWARD OVERLAP RATIO | = | 3.9332611 | PCT | SIDE OVERLAP RATIO = | 0. PCT |
| TIME BETWEEN PHOTOS | = | 2.3999870 | SEC | ALPHA = | 3.3025487 DEG. |

| DIRECTION COSINES TO TARGET | X | Y | Z | MAGNITUDE (KM) |
|---|---|---|---|---|
| CAMERA AXIS | -0.76229604 | 0.64113565 | -0.08859918 | 52.03776455 |
| C1 | -0.76095878 | 0.62784128 | -0.16357585 | 52.75097656 |
| C2 | -0.69985214 | 0.71414194 | -0.01443127 | 51.59809875 |
| C3 | -0.73991290 | 0.58101297 | -0.33904697 | 55.95410156 |
| C4 | -0.79662967 | 0.52055443 | -0.30725275 | 55.93182373 |
| | -0.75656892 | 0.65368341 | 0.01736293 | 51.57922363 |

| | X | Y | Z | X DOT | Y DOT | Z DOT |
|---|---|---|---|---|---|---|
| STATE VECTOR (1950.0) | -285.6394920 | -1605.5995483 | -736.9451218 | 1.7790469 | -0.0106013 | -0.7003656 |

LONG -43.1311 DEG
LATI -2.0914 DEG

LONG -43.5534 DEG
LATI -3.5054 DEG

(1) • 44.76061 KM • (2)

LOW RESOLUTION

33.33222 KM 40.12080 KM

(4) • 44.61999 KM • (3)

LONG -44.1579 DEG
LATI -1.6986 DEG

LONG -44.7887 DEG
LATI -3.0277 DEG

LONG -43.7028 DEG
LATI -2.2555 DEG

LONG -43.9269 DEG
LATI -2.8569 DEG

(1) • 19.46816 KM • (2)

HIGH RESOLUTION

4.58036 KM 4.96699 KM

(4) • 19.46034 KM • (3)

LONG -43.8439 DEG
LATI -2.2013 DEG

LONG -44.0799 DEG
LATI -2.7979 DEG

LOW RESOLUTION 191

| INDEX | LONGITUDE | LATITUDE |
|---|---|---|
| 1 | -43.1311445 | -2.0914158 |
| 2 | -43.1665626 | -2.2083862 |
| 3 | -43.2013826 | -2.3236773 |
| 4 | -43.2359743 | -2.4384987 |
| 5 | -43.2706957 | -2.5540382 |
| 6 | -43.3059120 | -2.6715166 |
| 7 | -43.3420095 | -2.7922359 |
| 8 | -43.3794084 | -2.9176484 |
| 9 | -43.4185963 | -3.0494250 |
| 10 | -43.4601512 | -3.1895651 |
| 11 | -43.5047765 | -3.3405285 |
| 12 | -43.5533595 | -3.5054383 |
| 13 | -43.6724505 | -3.4584457 |
| 14 | -43.7873688 | -3.4132905 |
| 15 | -43.8991790 | -3.3695354 |
| 16 | -44.0088339 | -3.3267930 |
| 17 | -44.1172190 | -3.2847131 |
| 18 | -44.2251768 | -3.2429618 |
| 19 | -44.3335414 | -3.2012199 |
| 20 | -44.4431520 | -3.1591665 |
| 21 | -44.5548906 | -3.1164693 |
| 22 | -44.6697130 | -3.0727766 |
| 23 | -44.7886777 | -3.0277050 |
| 24 | -44.7145739 | -2.8732616 |
| 25 | -44.6468625 | -2.7317512 |
| 26 | -44.5841136 | -2.6002726 |
| 27 | -44.5252032 | -2.4765412 |
| 28 | -44.4692230 | -2.3586991 |
| 29 | -44.4154181 | -2.2451856 |
| 30 | -44.3631263 | -2.1346450 |
| 31 | -44.3117700 | -2.0258563 |
| 32 | -44.2608032 | -1.9176721 |
| 33 | -44.2096930 | -1.8089756 |
| 34 | -44.1579099 | -1.6986228 |
| 35 | -44.0594015 | -1.7365149 |
| 36 | -43.9642057 | -1.7730915 |
| 37 | -43.8714685 | -1.8086836 |
| 38 | -43.7804189 | -1.8435901 |
| 39 | -43.6903391 | -1.8780885 |
| 40 | -43.6005425 | -1.9124410 |
| 41 | -43.5103498 | -1.9469087 |
| 42 | -43.4190712 | -1.9817537 |
| 43 | -43.3259792 | -2.0172494 |
| 44 | -43.2302952 | -2.0536953 |

HIGH RESOLUTION 191

| INDEX | LONGITUDE | LATITUDE |
|---|---|---|
| 1 | -43.7027869 | -2.2554565 |
| 2 | -43.7220106 | -2.3070210 |
| 3 | -43.7413230 | -2.3588297 |
| 4 | -43.7607718 | -2.4109995 |
| 5 | -43.7803984 | -2.4636483 |
| 6 | -43.8002472 | -2.5169007 |
| 7 | -43.8203654 | -2.5708849 |
| 8 | -43.8408079 | -2.6257364 |
| 9 | -43.8616266 | -2.6816031 |
| 10 | -43.8828788 | -2.7386369 |
| 11 | -43.9046292 | -2.7970051 |
| 12 | -43.9269400 | -2.8568888 |
| 13 | -43.9408636 | -2.8515160 |
| 14 | -43.9547729 | -2.8461483 |
| 15 | -43.9686794 | -2.8407849 |
| 16 | -43.9825788 | -2.8354258 |
| 17 | -43.9964747 | -2.8300683 |
| 18 | -44.0103674 | -2.8247143 |
| 19 | -44.0242634 | -2.8193603 |
| 20 | -44.0381594 | -2.8140080 |
| 21 | -44.0520625 | -2.8086548 |
| 22 | -44.0659685 | -2.8033017 |
| 23 | -44.0798850 | -2.7979459 |
| 24 | -44.0563655 | -2.7385558 |
| 25 | -44.0334435 | -2.6806665 |
| 26 | -44.0110507 | -2.6240980 |
| 27 | -43.9891186 | -2.5686855 |
| 28 | -43.9675899 | -2.5142754 |
| 29 | -43.9464025 | -2.4607233 |
| 30 | -43.9255095 | -2.4078978 |
| 31 | -43.9048548 | -2.3556656 |
| 32 | -43.8843913 | -2.3039090 |
| 33 | -43.8640752 | -2.2525075 |
| 34 | -43.8438544 | -2.2013477 |
| 35 | -43.8310204 | -2.2062697 |
| 36 | -43.8181968 | -2.2111892 |
| 37 | -43.8053732 | -2.2161069 |
| 38 | -43.7925563 | -2.2210238 |
| 39 | -43.7797427 | -2.2259390 |
| 40 | -43.7669258 | -2.2308542 |
| 41 | -43.7541089 | -2.2357710 |
| 42 | -43.7412887 | -2.2406879 |
| 43 | -43.7284617 | -2.2456073 |
| 44 | -43.7156277 | -2.2505311 |

PHOTO FRAME NUMBER 8 OF 16

## FRAME 192

| | YEAR | MONTH | DAY | HOUR | MINUTE | SECOND |
|---|---|---|---|---|---|---|
| GMT | 67 | 2 | 22 | 5 | 24 | 9.800 |

| | | | | | |
|---|---|---|---|---|---|
| LONGITUDE OF NADIR POINT | = | -43.6197205 | DEG | LATITUDE OF NADIR POINT | = -2.2184992 DEG |
| LONG OF CAMERA AXIS INTERSECT | = | -43.7424126 | DEG | LATI OF CAMERA AXIS INTERSECT | = -2.5692098 DEG |
| SPACECRAFT RADIUS | = | 1789.6237335 | KM | SPACECRAFT ALTITUDE | = 51.5337372 KM |
| MEAN ALTITUDE RATE | = | 0.0151895 | KM/SEC | TIME FROM PERIAPSIS | = 29.6661735 SEC |
| HORIZONTAL VELOCITY | = | 1.9118826 | KM/SEC | TRUE ANOMALY | = 1.8161764 DEG |
| SCALE FACTOR (HIGH) | = | 0.0115558 | M/KM | TILT DISTANCE (HIGH) | = 133.3086739 MM |
| SCALE FACTOR (LOW) | = | 0.0015155 | M/KM | TILT DISTANCE (LOW) | = 17.4831049 MM |
| IMAGE MOTION COMPENSATION (V/H) | = | 0.0362191 | RAD/SEC | SWING ANGLE | = 358.2389526 DEG |
| EMISSION ANGLE | = | 12.6990603 | DEG | INCIDENCE ANGLE | = 71.7556276 DEG |
| PHASE ANGLE | = | 68.1570158 | DEG | NORTH DEVIATION ANGLE | = 338.5229988 DEG |
| TILT ANGLE | = | 12.3275392 | DEG | RESOLUTION CONSTANT | = 1.1454862 MTR |
| TILT AZIMUTH | = | 199.2644939 | DEG | SUN AZIMUTH AT PRINCIPAL GND PT | = 90.6522427 DEG |
| SUN ANGLE AT NADIR | = | 71.6373787 | DEG | SUN ARC AT NADIR | = 2173.1480713 KM |
| LONGITUDE DISTANCE TO TARGET | = | 0.2472796 | DEG | LATITUDE DISTANCE TO TARGET | = 0.1645008 DEG |
| LONGITUDE ARC LENGTH TO TARGET | = | 7.5013252 | KM | LATITUDE ARC LENGTH TO TARGET | = 4.9901965 KM |
| FORWARD OVERLAP RATIO | = | 3.9605982 | PCT | SIDE OVERLAP RATIO | = 0. PCT |
| TIME BETWEEN PHOTOS | = | 2.4001479 | SEC | ALPHA | = 3.1537618 DEG. |

| DIRECTION COSINES TO TARGET | X | Y | Z | MAGNITUDE (KM) |
|---|---|---|---|---|
| CAMERA AXIS | -0.81406979 | 0.57794804 | -0.05715271 | 52.33741426 |
| C1 | -0.76095504 | 0.62784582 | -0.16357578 | 52.78738403 |
| C2 | -0.69984788 | 0.71414612 | -0.01443119 | 51.63990784 |
| C3 | -0.73990944 | 0.58101740 | -0.33904690 | 55.99978638 |
| C4 | -0.79662659 | 0.52055919 | -0.30725269 | 55.96321106 |
| | -0.75656503 | 0.65368791 | 0.01736300 | 51.60888672 |

| | X | Y | Z | X DOT | Y DOT | Z DOT |
|---|---|---|---|---|---|---|
| STATE VECTOR (1950.0) | -281.3690643 | -1605.6210327 | -738.6241837 | 1.7796293 | -0.0073041 | -0.6988512 |

LONG -42.9889 DEG
LATI -2.1446 DEG

(1) • 44.83684 KM • (2)

LONG -43.4116 DEG
LATI -3.5611 DEG

LOW RESOLUTION

33.35606 KM 40.14952 KM

(4) • 44.60588 KM • (3)

LONG -44.0166 DEG
LATI -1.7521 DEG

LONG -44.6470 DEG
LATI -3.0809 DEG

LONG -43.5615 DEG
LATI -2.3089 DEG

(1) • 19.48408 KM • (2)

LONG -43.7857 DEG
LATI -2.9108 DEG

HIGH RESOLUTION

4.58361 KM 4.97049 KM

(4) • 19.47123 KM • (3)

LONG -43.7026 DEG
LATI -2.2547 DEG

LONG -43.9387 DEG
LATI -2.8517 DEG

LOW RESOLUTION 192

| INDEX | LONGITUDE | LATITUDE |
|---|---|---|
| 1 | -42.9888787 | -2.1446145 |
| 2 | -43.0243340 | -2.2617701 |
| 3 | -43.0591922 | -2.3772481 |
| 4 | -43.0938210 | -2.4922574 |
| 5 | -43.1285796 | -2.6079916 |
| 6 | -43.1638374 | -2.7256689 |
| 7 | -43.1999722 | -2.8465982 |
| 8 | -43.2374120 | -2.9722319 |
| 9 | -43.2766447 | -3.1042475 |
| 10 | -43.3182440 | -3.2446454 |
| 11 | -43.3629203 | -3.3958949 |
| 12 | -43.4115582 | -3.5611274 |
| 13 | -43.5308881 | -3.5138027 |
| 14 | -43.6459904 | -3.4683435 |
| 15 | -43.7579341 | -3.4243119 |
| 16 | -43.8676815 | -3.3813175 |
| 17 | -43.9761143 | -3.3390011 |
| 18 | -44.0840821 | -3.2970330 |
| 19 | -44.1924157 | -3.2550879 |
| 20 | -44.3019552 | -3.2128432 |
| 21 | -44.4135809 | -3.1699684 |
| 22 | -44.5282393 | -3.1261101 |
| 23 | -44.6469855 | -3.0808831 |
| 24 | -44.5729461 | -2.9265012 |
| 25 | -44.5052900 | -2.7850403 |
| 26 | -44.4425921 | -2.6536036 |
| 27 | -44.3837228 | -2.5299063 |
| 28 | -44.3277802 | -2.4120924 |
| 29 | -44.2740059 | -2.2986037 |
| 30 | -44.2217445 | -2.1880835 |
| 31 | -44.1704192 | -2.0793102 |
| 32 | -44.1194730 | -1.9711405 |
| 33 | -44.0683899 | -1.8624543 |
| 34 | -44.0166273 | -1.7521100 |
| 35 | -43.9181805 | -1.7899159 |
| 36 | -43.8230119 | -1.8264207 |
| 37 | -43.7302718 | -1.8619548 |
| 38 | -43.6391912 | -1.8968152 |
| 39 | -43.5490532 | -1.9312769 |
| 40 | -43.4591713 | -1.9656055 |
| 41 | -43.3688660 | -2.0000587 |
| 42 | -43.2774439 | -2.0348969 |
| 43 | -43.1841774 | -2.0704002 |
| 44 | -43.0882816 | -2.1068640 |

HIGH RESOLUTION 192

| INDEX | LONGITUDE | LATITUDE |
|---|---|---|
| 1 | -43.5614634 | -2.3088976 |
| 2 | -43.5807009 | -2.3605056 |
| 3 | -43.6000266 | -2.4123596 |
| 4 | -43.6194825 | -2.4645721 |
| 5 | -43.6391196 | -2.5172670 |
| 6 | -43.6589780 | -2.5705647 |
| 7 | -43.6791101 | -2.6245949 |
| 8 | -43.6995630 | -2.6794943 |
| 9 | -43.7203951 | -2.7354088 |
| 10 | -43.7416577 | -2.7924912 |
| 11 | -43.7634187 | -2.8509107 |
| 12 | -43.7857432 | -2.9108473 |
| 13 | -43.7996731 | -2.9054548 |
| 14 | -43.8135934 | -2.9000684 |
| 15 | -43.8275061 | -2.8946862 |
| 16 | -43.8414092 | -2.8893083 |
| 17 | -43.8553119 | -2.8839329 |
| 18 | -43.8692112 | -2.8785610 |
| 19 | -43.8831110 | -2.8731907 |
| 20 | -43.8970103 | -2.8678214 |
| 21 | -43.9109163 | -2.8624503 |
| 22 | -43.9248261 | -2.8570809 |
| 23 | -43.9387426 | -2.8517081 |
| 24 | -43.9152160 | -2.7922829 |
| 25 | -43.8922873 | -2.7343586 |
| 26 | -43.8698874 | -2.6777560 |
| 27 | -43.8479490 | -2.6223094 |
| 28 | -43.8264136 | -2.5678676 |
| 29 | -43.8052230 | -2.5142839 |
| 30 | -43.7843223 | -2.4614251 |
| 31 | -43.7636609 | -2.4091631 |
| 32 | -43.7431908 | -2.3573740 |
| 33 | -43.7228642 | -2.3059418 |
| 34 | -43.7026367 | -2.2547496 |
| 35 | -43.6897993 | -2.2596741 |
| 36 | -43.6769652 | -2.2645970 |
| 37 | -43.6641350 | -2.2695173 |
| 38 | -43.6513114 | -2.2744376 |
| 39 | -43.6384840 | -2.2793562 |
| 40 | -43.6256604 | -2.2842756 |
| 41 | -43.6128335 | -2.2891951 |
| 42 | -43.6000028 | -2.2941162 |
| 43 | -43.5871654 | -2.2990408 |
| 44 | -43.5743179 | -2.3039679 |

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* PHOTO FRAME NUMBER 9 OF 16 *
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## FRAME 193

| | YEAR | MONTH | DAY | HOUR | MINUTE | SECOND |
|---|---|---|---|---|---|---|
| GMT | 67 | 2 | 22 | 5 | 24 | 12.209 |

| | | | | | |
|---|---|---|---|---|---|
| LONGITUDE OF NADIR POINT | = | -43.4824677 | DEG | LATITUDE OF NADIR POINT | = -2.2703446 DEG |
| LONG OF CAMERA AXIS INTERSECT | = | -43.6011367 | DEG | LATI OF CAMERA AXIS INTERSECT | = -2.6228703 DEG |
| SPACECRAFT RADIUS | = | 1789.6616821 | KM | SPACECRAFT ALTITUDE | = 51.5716858 KM |
| MEAN ALTITUDE RATE | = | 0.0164172 | KM/SEC | TIME FROM PERIAPSIS | = 32.0652957 SEC |
| HORIZONTAL VELOCITY | = | 1.9118426 | KM/SEC | TRUE ANOMALY | = 1.9630240 DEG |
| SCALE FACTOR (HIGH) | = | 0.0115471 | M/KM | TILT DISTANCE (HIGH) | = 133.3581581 MM |
| SCALE FACTOR (LOW) | = | 0.0015144 | M/KM | TILT DISTANCE (LOW) | = 17.4895947 MM |
| IMAGE MOTION COMPENSATION (V/H) | = | 0.0361913 | RAD/SEC | SWING ANGLE | = 357.5512238 DEG |
| EMISSION ANGLE | = | 12.7039082 | DEG | INCIDENCE ANGLE | = 71.6135702 DEG |
| PHASE ANGLE | = | 68.1570158 | DEG | NORTH DEVIATION ANGLE | = 338.5255432 DEG |
| TILT ANGLE | = | 12.3319751 | DEG | RESOLUTION CONSTANT | = 1.1463501 MTR |
| TILT AZIMUTH | = | 198.5871906 | DEG | SUN AZIMUTH AT PRINCIPAL GND PT | = 90.6285906 DEG |
| SUN ANGLE AT NADIR | = | 71.4992256 | DEG | SUN ARC AT NADIR | = 2168.9571533 KM |
| LONGITUDE DISTANCE TO TARGET | = | 0.3845325 | DEG | LATITUDE DISTANCE TO TARGET | = 0.1126554 DEG |
| LONGITUDE ARC LENGTH TO TARGET | = | 11.6649432 | KM | LATITUDE ARC LENGTH TO TARGET | = 3.4174459 KM |
| FORWARD OVERLAP RATIO | = | 3.9898241 | PCT | SIDE OVERLAP RATIO | = 0. PCT |
| TIME BETWEEN PHOTOS | = | 2.3999870 | SEC | ALPHA | = 3.0048769 DEG. |

| | X | Y | Z | MAGNITUDE (KM) |
|---|---|---|---|---|
| DIRECTION COSINES TO TARGET | -0.85884612 | 0.51158011 | -0.02586775 | 53.02396727 |
| CAMERA AXIS | -0.76095137 | 0.62785031 | -0.16357569 | 52.82719421 |
| C1 | -0.69984369 | 0.71415024 | -0.01443109 | 51.68504333 |
| C2 | -0.73990604 | 0.58102179 | -0.33904682 | 56.04910278 |
| C3 | -0.79662354 | 0.52056390 | -0.30725260 | 55.99819946 |
| C4 | -0.75656119 | 0.65369236 | 0.01736310 | 51.64186096 |

| | X | Y | Z | X DOT | Y DOT | Z DOT |
|---|---|---|---|---|---|---|
| STATE VECTOR (1950.0) | -277.0954819 | -1605.6346130 | -740.3003082 | 1.7802032 | -0.0040058 | -0.6973328 |

LONG -42.8465 DEG
LATI -2.1978 DEG

LONG -43.2697 DEG
LATI -3.6169 DEG

* (1) 44.91617 KM * (2)

LOW RESOLUTION

33.38235 KM 40.18137 KM

(4) * 44.59467 KM * (3)

LONG -43.8753 DEG
LATI -1.8056 DEG

LONG -44.5053 DEG
LATI -3.1341 DEG

LONG -43.4201 DEG
LATI -2.3624 DEG

LONG -43.6445 DEG
LATI -2.9649 DEG

* (1) 19.50125 KM * (2)

HIGH RESOLUTION

4.58717 KM 4.97435 KM

(4) * 19.48337 KM * (3)

LONG -43.5614 DEG
LATI -2.3082 DEG

LONG -43.7975 DEG
LATI -2.9055 DEG

LOW RESOLUTION 193

| INDEX | LONGITUDE | LATITUDE |
|---|---|---|
| 1 | -42.8464932 | -2.1978157 |
| 2 | -42.8819895 | -2.3151660 |
| 3 | -42.9168849 | -2.4308387 |
| 4 | -42.9515548 | -2.5460452 |
| 5 | -42.9863548 | -2.6619791 |
| 6 | -43.0216498 | -2.7798647 |
| 7 | -43.0578260 | -2.9010118 |
| 8 | -43.0953102 | -3.0268760 |
| 9 | -43.1345868 | -3.1591392 |
| 10 | -43.1762376 | -3.2998069 |
| 11 | -43.2209649 | -3.4513526 |
| 12 | -43.2696643 | -3.6169189 |
| 13 | -43.3892403 | -3.5692553 |
| 14 | -43.5045376 | -3.5234913 |
| 15 | -43.6166244 | -3.4791796 |
| 16 | -43.7264705 | -3.4359266 |
| 17 | -43.8349614 | -3.3933728 |
| 18 | -43.9429469 | -3.3511827 |
| 19 | -44.0512562 | -3.3090319 |
| 20 | -44.1607308 | -3.2665934 |
| 21 | -44.2722473 | -3.2235393 |
| 22 | -44.3867517 | -3.1795111 |
| 23 | -44.5052934 | -3.1341279 |
| 24 | -44.4313121 | -2.9797972 |
| 25 | -44.3637071 | -2.8383764 |
| 26 | -44.3010502 | -2.7069713 |
| 27 | -44.2422218 | -2.5833004 |
| 28 | -44.1863132 | -2.4655079 |
| 29 | -44.1325698 | -2.3520345 |
| 30 | -44.0803361 | -2.2415272 |
| 31 | -44.0290308 | -2.1327649 |
| 32 | -43.9781117 | -2.0246021 |
| 33 | -43.9270458 | -1.9159193 |
| 34 | -43.8753076 | -1.8055750 |
| 35 | -43.7769117 | -1.8432973 |
| 36 | -43.6817636 | -1.8797338 |
| 37 | -43.5890131 | -1.9152123 |
| 38 | -43.4978948 | -1.9500284 |
| 39 | -43.4076953 | -1.9844568 |
| 40 | -43.3177180 | -2.0187614 |
| 41 | -43.2272930 | -2.0532018 |
| 42 | -43.1357207 | -2.0880383 |
| 43 | -43.0422702 | -2.1235502 |
| 44 | -42.9461555 | -2.1600328 |

HIGH RESOLUTION 193

| INDEX | LONGITUDE | LATITUDE |
|---|---|---|
| 1 | -43.4209649 | -2.3623541 |
| 2 | -43.4393125 | -2.4140091 |
| 3 | -43.4586520 | -2.4659091 |
| 4 | -43.4781218 | -2.5181712 |
| 5 | -43.4977684 | -2.5709139 |
| 6 | -43.5176411 | -2.6242611 |
| 7 | -43.5377865 | -2.6783408 |
| 8 | -43.5582533 | -2.7332923 |
| 9 | -43.5790958 | -2.7892571 |
| 10 | -43.6003718 | -2.8463933 |
| 11 | -43.6221466 | -2.9048666 |
| 12 | -43.6444845 | -2.9648595 |
| 13 | -43.6584215 | -2.9594475 |
| 14 | -43.6723518 | -2.9540423 |
| 15 | -43.6862717 | -2.9486404 |
| 16 | -43.7001848 | -2.9432446 |
| 17 | -43.7140908 | -2.9378504 |
| 18 | -43.7279973 | -2.9324605 |
| 19 | -43.7419000 | -2.9270724 |
| 20 | -43.7558064 | -2.9216842 |
| 21 | -43.7697158 | -2.9162978 |
| 22 | -43.7836289 | -2.9109096 |
| 23 | -43.7975492 | -2.9055215 |
| 24 | -43.7740154 | -2.8460561 |
| 25 | -43.7510762 | -2.7880934 |
| 26 | -43.7286701 | -2.7314532 |
| 27 | -43.7067246 | -2.6759699 |
| 28 | -43.6851788 | -2.6214914 |
| 29 | -43.6639814 | -2.5678719 |
| 30 | -43.6430707 | -2.5149781 |
| 31 | -43.6223989 | -2.4626802 |
| 32 | -43.6019220 | -2.4108569 |
| 33 | -43.5815887 | -2.3593898 |
| 34 | -43.5613542 | -2.3081625 |
| 35 | -43.5485067 | -2.3130905 |
| 36 | -43.5356660 | -2.3180167 |
| 37 | -43.5228286 | -2.3229396 |
| 38 | -43.5099912 | -2.3278625 |
| 39 | -43.4971571 | -2.3327853 |
| 40 | -43.4843235 | -2.3377082 |
| 41 | -43.4714828 | -2.3426336 |
| 42 | -43.4586420 | -2.3475582 |
| 43 | -43.4457908 | -2.3524862 |
| 44 | -43.4329329 | -2.3574184 |

**********
* PHOTO FRAME NUMBER 10 OF 16 *
**********

## FRAME 194

| | YEAR | MONTH | DAY | HOUR | MINUTE | SECOND |
|---|---|---|---|---|---|---|
| GMT | 67 | 2 | 22 | 5 | 24 | 14.600 |

| | | | | | |
|---|---|---|---|---|---|
| LONGITUDE OF NADIR POINT | = | -43.3452721 | DEG | LATITUDE OF NADIR POINT | = | -2.3221524 | DEG |
| LONG OF CAMERA AXIS INTERSECT | = | -43.4599190 | DEG | LATI OF CAMERA AXIS INTERSECT | = | -2.6765163 | DEG |
| SPACECRAFT RADIUS | = | 1789.7025604 | KM | SPACECRAFT ALTITUDE | = | 51.6125641 | KM |
| MEAN ALTITUDE RATE | = | 0.0176443 | KM/SEC | TIME FROM PERIAPSIS | = | 34.4634342 | SEC |
| HORIZONTAL VELOCITY | = | 1.9117994 | KM/SEC | TRUE ANOMALY | = | 2.1098050 | DEG |
| SCALE FACTOR (HIGH) | = | 0.0115376 | M/KM | TILT DISTANCE (HIGH) | = | 133.4269314 | MM |
| SCALE FACTOR (LOW) | = | 0.0015131 | M/KM | TILT DISTANCE (LOW) | = | 17.4986141 | MM |
| IMAGE MOTION COMPENSATION (V/H) | = | 0.0361610 | RAD/SEC | SWING ANGLE | = | 356.8642921 | DEG |
| EMISSION ANGLE | = | 12.7105628 | DEG | INCIDENCE ANGLE | = | 71.4715948 | DEG |
| PHASE ANGLE | = | 68.1570177 | DEG | NORTH DEVIATION ANGLE | = | 338.5283585 | DEG |
| TILT ANGLE | = | 12.3381399 | DEG | RESOLUTION CONSTANT | = | 1.1472875 | MTR |
| TILT AZIMUTH | = | 197.9106426 | DEG | SUN AZIMUTH AT PRINCIPAL GND PT | = | 90.6046495 | DEG |
| SUN ANGLE AT NADIR | = | 71.3611498 | DEG | SUN ARC AT NADIR | = | 2164.7685547 | KM |
| LONGITUDE DISTANCE TO TARGET | = | 0.5217280 | DEG | LATITUDE DISTANCE TO TARGET | = | 0.0608476 | DEG |
| LONGITUDE ARC LENGTH TO TARGET | = | 15.8268251 | KM | LATITUDE ARC LENGTH TO TARGET | = | 1.8458344 | KM |
| FORWARD OVERLAP RATIO | = | 4.1070845 | PCT | SIDE OVERLAP RATIO | = | 0. | PCT |
| TIME BETWEEN PHOTOS | = | 2.3999870 | SEC | ALPHA | = | 2.8560104 | DEG. |

| DIRECTION COSINES TO TARGET | X | Y | Z | MAGNITUDE (KM) |
|---|---|---|---|---|
| CAMERA AXIS | -0.89613768 | 0.44375263 | 0.00456659 | 54.08195066 |
| C1 | -0.76094763 | 0.62785485 | -0.16357561 | 52.87039185 |
| C2 | -0.69983944 | 0.71415440 | -0.01443101 | 51.73348999 |
| C3 | -0.73990259 | 0.58102621 | -0.33904675 | 56.10202026 |
| C4 | -0.79662045 | 0.52056868 | -0.30725254 | 56.03675842 |
| | -0.75655730 | 0.65369686 | 0.01736318 | 51.67814636 |

| STATE VECTOR (1950.0) | X | Y | Z | X DOT | Y DOT | Z DOT |
|---|---|---|---|---|---|---|
| | -272.8223228 | -1605.6402740 | -741.9720764 | 1.7807680 | -0.0007090 | -0.6958116 |

LONG -42.7041 DEG
LATI -2.2510 DEG

LONG -43.1278 DEG
LATI -3.6728 DEG

* (1) 44.99854 KM * (2)

LOW RESOLUTION

33.41105 KM 40.21634 KM

(4) * 44.58639 KM * (3)

LONG -43.7341 DEG
LATI -1.8590 DEG

LONG -44.3637 DEG
LATI -3.1874 DEG

LONG -43.2787 DEG
LATI -2.4158 DEG

LONG -43.5033 DEG
LATI -3.0189 DEG

* (1) 19.51968 KM * (2)

HIGH RESOLUTION

4.59108 KM 4.97858 KM

(4) * 19.49675 KM * (3)

LONG -43.4201 DEG
LATI -2.3615 DEG

LONG -43.6564 DEG
LATI -2.9593 DEG

LOW RESOLUTION 194

| INDEX | LONGITUDE | LATITUDE |
|---|---|---|
| 1 | -42.7041144 | -2.2509759 |
| 2 | -42.7396517 | -2.3685285 |
| 3 | -42.7745881 | -2.4844027 |
| 4 | -42.8092995 | -2.5998133 |
| 5 | -42.8441401 | -2.7159555 |
| 6 | -42.8794761 | -2.8340580 |
| 7 | -42.9156966 | -2.9554313 |
| 8 | -42.9532251 | -3.0815363 |
| 9 | -42.9925499 | -3.2140556 |
| 10 | -43.0342517 | -3.3550017 |
| 11 | -43.0790372 | -3.5068555 |
| 12 | -43.1277943 | -3.6727668 |
| 13 | -43.2476335 | -3.6247608 |
| 14 | -43.3631287 | -3.5786870 |
| 15 | -43.4753690 | -3.5340909 |
| 16 | -43.5853214 | -3.4905775 |
| 17 | -43.6938772 | -3.4477821 |
| 18 | -43.8018861 | -3.4053675 |
| 19 | -43.9101825 | -3.3630067 |
| 20 | -44.0195985 | -3.3203743 |
| 21 | -44.1310196 | -3.2771350 |
| 22 | -44.2453771 | -3.2329368 |
| 23 | -44.3637204 | -3.1873922 |
| 24 | -44.2897973 | -3.0331034 |
| 25 | -44.2222366 | -2.8917134 |
| 26 | -44.1596208 | -2.7603312 |
| 27 | -44.1008267 | -2.6366792 |
| 28 | -44.0449486 | -2.5188994 |
| 29 | -43.9912295 | -2.4054355 |
| 30 | -43.9390225 | -2.2949333 |
| 31 | -43.8877382 | -2.1861736 |
| 32 | -43.8368363 | -2.0780099 |
| 33 | -43.7857909 | -1.9693245 |
| 34 | -43.7340627 | -1.8589743 |
| 35 | -43.6357179 | -1.8966154 |
| 36 | -43.5405836 | -1.9329862 |
| 37 | -43.4478159 | -1.9684101 |
| 38 | -43.3566537 | -2.0031843 |
| 39 | -43.2663789 | -2.0375811 |
| 40 | -43.1763058 | -2.0718653 |
| 41 | -43.0857544 | -2.1062945 |
| 42 | -42.9940252 | -2.1411311 |
| 43 | -42.9003868 | -2.1766532 |
| 44 | -42.8040433 | -2.2131571 |

HIGH RESOLUTION 194

| INDEX | LONGITUDE | LATITUDE |
|---|---|---|
| 1 | -43.2787108 | -2.4157798 |
| 2 | -43.2979755 | -2.4674843 |
| 3 | -43.3173251 | -2.5194364 |
| 4 | -43.3368082 | -2.5717489 |
| 5 | -43.3564725 | -2.6245437 |
| 6 | -43.3763585 | -2.6779430 |
| 7 | -43.3965144 | -2.7320765 |
| 8 | -43.4169950 | -2.7870808 |
| 9 | -43.4378510 | -2.8431029 |
| 10 | -43.4591403 | -2.9002955 |
| 11 | -43.4809322 | -2.9588276 |
| 12 | -43.5032806 | -3.0188795 |
| 13 | -43.5172315 | -3.0134495 |
| 14 | -43.5311685 | -3.0080229 |
| 15 | -43.5450983 | -3.0026032 |
| 16 | -43.5590219 | -2.9971868 |
| 17 | -43.5729346 | -2.9917756 |
| 18 | -43.5868478 | -2.9863670 |
| 19 | -43.6007609 | -2.9809600 |
| 20 | -43.6146708 | -2.9755548 |
| 21 | -43.6285839 | -2.9701487 |
| 22 | -43.6425037 | -2.9647443 |
| 23 | -43.6564269 | -2.9593391 |
| 24 | -43.6328802 | -2.8998293 |
| 25 | -43.6099339 | -2.8418248 |
| 26 | -43.5875173 | -2.7851436 |
| 27 | -43.5655618 | -2.7296210 |
| 28 | -43.5440092 | -2.6751007 |
| 29 | -43.5228014 | -2.6214428 |
| 30 | -43.5018802 | -2.5685105 |
| 31 | -43.4812021 | -2.5161742 |
| 32 | -43.4607148 | -2.4643126 |
| 33 | -43.4403710 | -2.4128070 |
| 34 | -43.4201264 | -2.3615430 |
| 35 | -43.4072719 | -2.3664735 |
| 36 | -43.3944211 | -2.3714024 |
| 37 | -43.3815737 | -2.3763295 |
| 38 | -43.3687258 | -2.3812558 |
| 39 | -43.3558817 | -2.3861829 |
| 40 | -43.3430343 | -2.3911092 |
| 41 | -43.3301864 | -2.3960389 |
| 42 | -43.3173289 | -2.4009686 |
| 43 | -43.3044677 | -2.4059025 |
| 44 | -43.2915959 | -2.4108390 |

**********
* PHOTO FRAME NUMBER 11 OF 16 *
**********

## FRAME 195

| | YEAR | MONTH | DAY | HOUR | MINUTE | SECOND |
|---|---|---|---|---|---|---|
| GMT | 67 | 2 | 22 | 5 | 24 | 17.000 |

| | | | | | |
|---|---|---|---|---|---|
| LONGITUDE OF NADIR POINT | = | -43.2080650 | DEG | LATITUDE OF NADIR POINT | = -2.3739440 DEG |
| LONG OF CAMERA AXIS INTERSECT | = | -43.3186946 | DEG | LATI OF CAMERA AXIS INTERSECT | = -2.7301717 DEG |
| SPACECRAFT RADIUS | = | 1789.7463684 | KM | SPACECRAFT ALTITUDE | = 51.6563721 KM |
| MEAN ALTITUDE RATE | = | 0.0188711 | KM/SEC | TIME FROM PERIAPSIS | = 36.8615994 SEC |
| HORIZONTAL VELOCITY | = | 1.9117530 | KM/SEC | TRUE ANOMALY | = 2.2565804 DEG |
| SCALE FACTOR (HIGH) | = | 0.0115275 | M/KM | TILT DISTANCE (HIGH) | = 133.5148067 MM |
| SCALE FACTOR (LOW) | = | 0.0015118 | M/KM | TILT DISTANCE (LOW) | = 17.5101385 MM |
| IMAGE MOTION COMPENSATION (V/H) | = | 0.0361283 | RAD/SEC | SWING ANGLE | = 356.1782646 DEG |
| EMISSION ANGLE | = | 12.7190017 | DEG | INCIDENCE ANGLE | = 71.3296432 DEG |
| PHASE ANGLE | = | 68.1570158 | DEG | NORTH DEVIATION ANGLE | = 338.5314407 DEG |
| TILT ANGLE | = | 12.3460168 | DEG | RESOLUTION CONSTANT | = 1.1482977 MTR |
| TILT AZIMUTH | = | 197.2347775 | DEG | SUN AZIMUTH AT PRINCIPAL GND PT | = 90.5804090 DEG |
| SUN ANGLE AT NADIR | = | 71.2230930 | DEG | SUN ARC AT NADIR | = 2160.5805664 KM |
| LONGITUDE DISTANCE TO TARGET | = | 0.6589351 | DEG | LATITUDE DISTANCE TO TARGET | = 0.0090559 DEG |
| LONGITUDE ARC LENGTH TO TARGET | = | 19.9890544 | KM | LATITUDE ARC LENGTH TO TARGET | = 0.2747156 KM |
| FORWARD OVERLAP RATIO | = | 4.1889373 | PCT | SIDE OVERLAP RATIO | = 0. PCT |
| TIME BETWEEN PHOTOS | = | 2.3999870 | SEC | ALPHA | = 2.7071055 DEG. |

| | X | Y | Z | MAGNITUDE (KM) |
|---|---|---|---|---|
| DIRECTION COSINES TO TARGET | -0.92599856 | 0.37602767 | 0.03361313 | 55.49038601 |
| CAMERA AXIS | -0.76094395 | 0.62785935 | -0.16357553 | 52.91694641 |
| C1 | -0.69983523 | 0.71415852 | -0.01443093 | 51.78524780 |
| C2 | -0.73989917 | 0.58103060 | -0.33904667 | 56.15852356 |
| C3 | -0.79661740 | 0.52057339 | -0.30725247 | 56.07887268 |
| C4 | -0.75655346 | 0.65370130 | 0.01736327 | 51.71768188 |

| | X | Y | Z | X DOT | Y DOT | Z DOT |
|---|---|---|---|---|---|---|
| STATE VECTOR (1950.0) | -268.5477943 | -1605.6380157 | -743.6401978 | 1.7813240 | 0.0025875 | -0.6942871 |

LONG -42.5617 DEG
LATI -2.3041 DEG

LONG -42.9859 DEG
LATI -3.7287 DEG

* 45.08398 KM *
(1) (2)

LOW RESOLUTION

33.44218 KM 40.25439 KM

(4) (3)
* 44.58097 KM *

LONG -43.5928 DEG
LATI -1.9123 DEG

LONG -44.2222 DEG
LATI -3.2407 DEG

LONG -43.1373 DEG
LATI -2.4692 DEG

LONG -43.3621 DEG
LATI -3.0729 DEG

* 19.53935 KM *
(1) (2)

HIGH RESOLUTION

4.59528 KM 4.98317 KM

(4) (3)
* 19.51138 KM *

LONG -43.2789 DEG
LATI -2.4149 DEG

LONG -43.5153 DEG
LATI -3.0132 DEG

LOW RESOLUTION 195

| INDEX | LONGITUDE | LATITUDE |
|---|---|---|
| 1 | -42.5616741 | -2.3041173 |
| 2 | -42.5972524 | -2.4218800 |
| 3 | -42.6322370 | -2.5379642 |
| 4 | -42.6669888 | -2.6535873 |
| 5 | -42.7018704 | -2.7699473 |
| 6 | -42.7372546 | -2.8882735 |
| 7 | -42.7735195 | -3.0098808 |
| 8 | -42.8110957 | -3.1362333 |
| 9 | -42.8504715 | -3.2690181 |
| 10 | -42.8922248 | -3.4102545 |
| 11 | -42.9370646 | -3.5624268 |
| 12 | -42.9858904 | -3.7286933 |
| 13 | -43.1059923 | -3.6803406 |
| 14 | -43.2217026 | -3.6339526 |
| 15 | -43.3341036 | -3.5890688 |
| 16 | -43.4441686 | -3.5452899 |
| 17 | -43.5527992 | -3.5022503 |
| 18 | -43.6608396 | -3.4596086 |
| 19 | -43.7691288 | -3.4170360 |
| 20 | -43.8785005 | -3.3742039 |
| 21 | -43.9898257 | -3.3307793 |
| 22 | -44.1040502 | -3.2864069 |
| 23 | -44.2222023 | -3.2407002 |
| 24 | -44.1483307 | -3.0864404 |
| 25 | -44.0808139 | -2.9450716 |
| 26 | -44.0182323 | -2.8137058 |
| 27 | -43.9594688 | -2.6900640 |
| 28 | -43.9036183 | -2.5722893 |
| 29 | -43.8499231 | -2.4588279 |
| 30 | -43.7977366 | -2.3483240 |
| 31 | -43.7464695 | -2.2395601 |
| 32 | -43.6955848 | -2.1313887 |
| 33 | -43.6445527 | -2.0226930 |
| 34 | -43.5928378 | -1.9123291 |
| 35 | -43.4945312 | -1.9498926 |
| 36 | -43.3994036 | -1.9861985 |
| 37 | -43.3066154 | -2.0215712 |
| 38 | -43.2154016 | -2.0563053 |
| 39 | -43.1250486 | -2.0906739 |
| 40 | -43.0348697 | -2.1249393 |
| 41 | -42.9441819 | -2.1593591 |
| 42 | -42.8522882 | -2.1941974 |
| 43 | -42.7584553 | -2.2297323 |
| 44 | -42.6618800 | -2.2662618 |

HIGH RESOLUTION 195

| INDEX | LONGITUDE | LATITUDE |
|---|---|---|
| 1 | -43.1373429 | -2.4691970 |
| 2 | -43.1566176 | -2.5209570 |
| 3 | -43.1759815 | -2.5729621 |
| 4 | -43.1954813 | -2.6253309 |
| 5 | -43.2151594 | -2.6781786 |
| 6 | -43.2350593 | -2.7316351 |
| 7 | -43.2552319 | -2.7858258 |
| 8 | -43.2757258 | -2.8408882 |
| 9 | -43.2965956 | -2.8969683 |
| 10 | -43.3179026 | -2.9542215 |
| 11 | -43.3397079 | -3.0128160 |
| 12 | -43.3620768 | -3.0729328 |
| 13 | -43.3760343 | -3.0674806 |
| 14 | -43.3899846 | -3.0620361 |
| 15 | -43.4039254 | -3.0565958 |
| 16 | -43.4178553 | -3.0511607 |
| 17 | -43.4317789 | -3.0457298 |
| 18 | -43.4456987 | -3.0403016 |
| 19 | -43.4596186 | -3.0348758 |
| 20 | -43.4735351 | -3.0294518 |
| 21 | -43.4874549 | -3.0240295 |
| 22 | -43.5013785 | -3.0186063 |
| 23 | -43.5153084 | -3.0131831 |
| 24 | -43.4917512 | -2.9536273 |
| 25 | -43.4687948 | -2.8955767 |
| 26 | -43.4463682 | -2.8388503 |
| 27 | -43.4244022 | -2.7832841 |
| 28 | -43.4028392 | -2.7287211 |
| 29 | -43.3816180 | -2.6750196 |
| 30 | -43.3606901 | -2.6220447 |
| 31 | -43.3399982 | -2.5696665 |
| 32 | -43.3195009 | -2.5177639 |
| 33 | -43.2991467 | -2.4662165 |
| 34 | -43.2788920 | -2.4149107 |
| 35 | -43.2660270 | -2.4198455 |
| 36 | -43.2531657 | -2.4247777 |
| 37 | -43.2403045 | -2.4297091 |
| 38 | -43.2274504 | -2.4346397 |
| 39 | -43.2145925 | -2.4395711 |
| 40 | -43.2017345 | -2.4445025 |
| 41 | -43.1888700 | -2.4494356 |
| 42 | -43.1760020 | -2.4543704 |
| 43 | -43.1631236 | -2.4593086 |
| 44 | -43.1502385 | -2.4642511 |

**********
* PHOTO FRAME NUMBER 12 OF 16 *
**********

## FRAME 196

| | YEAR | MONTH | DAY | HOUR | MINUTE | SECOND |
|---|---|---|---|---|---|---|
| GMT | 67 | 2 | 22 | 5 | 24 | 19.400 |

| | | | | | |
|---|---|---|---|---|---|
| LONGITUDE OF NADIR POINT | = | -43.0708618 DEG | LATITUDE OF NADIR POINT | = | -2.4257186 DEG |
| LONG OF CAMERA AXIS INTERSECT | = | -43.1774669 DEG | LATI OF CAMERA AXIS INTERSECT | = | -2.7838365 DEG |
| SPACECRAFT RADIUS | = | 1789.7331366 KM | SPACECRAFT ALTITUDE | = | 51.7031403 KM |
| MEAN ALTITUDE RATE | = | 0.0200978 KM/SEC | TIME FROM PERIAPSIS | = | 39.2597423 SEC |
| HORIZONTAL VELOCITY | = | 1.9117035 KM/SEC | TRUE ANOMALY | = | 2.4033473 DEG |
| SCALE FACTOR (HIGH) | = | 0.0115166 M/KM | TILT DISTANCE (HIGH) | = | 133.6218414 MM |
| SCALE FACTOR (LOW) | = | 0.0015104 M/KM | TILT DISTANCE (LOW) | = | 17.5241759 MM |
| IMAGE MOTION COMPENSATION (V/H) | = | 0.0360931 RAD/SEC | SWING ANGLE | = | 355.4931450 DEG |
| EMISSION ANGLE | = | 12.7292312 DEG | INCIDENCE ANGLE | = | 71.1877165 DEG |
| PHASE ANGLE | = | 68.1570177 DEG | NORTH DEVIATION ANGLE | = | 338.5348015 DEG |
| TILT ANGLE | = | 12.3556103 DEG | RESOLUTION CONSTANT | = | 1.1493818 MIR |
| TILT AZIMUTH | = | 196.5597763 DEG | SUN AZIMUTH AT PRINCIPAL GND PT | = | 90.5558681 DEG |
| SUN ANGLE AT NADIR | = | 71.0850620 DEG | SUN ARC AT NADIR | = | 2156.3933105 KM |
| LONGITUDE DISTANCE TO TARGET | = | 0.7961383 DEG | LATITUDE DISTANCE TO TARGET | = | -0.0427186 DEG |
| LONGITUDE ARC LENGTH TO TARGET | = | 24.1511681 KM | LATITUDE ARC LENGTH TO TARGET | = | -1.2958852 KM |
| FORWARD OVERLAP RATIO | = | 4.2794417 PCT | SIDE OVERLAP RATIO | = | 0. PCT |
| TIME BETWEEN PHOTOS | = | 2.3999870 SEC | ALPHA | = | 2.5581552 DEG. |

| | X | Y | Z | MAGNITUDE (KM) |
|---|---|---|---|---|
| DIRECTION COSINES TO TARGET | -0.94885676 | 0.30978369 | 0.06086805 | 57.22337198 |
| CAMERA AXIS | -0.76094025 | 0.62786384 | -0.16357546 | 52.96690369 |
| C1 | -0.69983103 | 0.71416263 | -0.01443084 | 51.84031677 |
| C2 | -0.73989576 | 0.58103498 | -0.33904660 | 56.21864319 |
| C3 | -0.79661433 | 0.52057811 | -0.30725239 | 56.12458801 |
| C4 | -0.75654960 | 0.65370575 | 0.01736334 | 51.76052856 |

| | X | Y | Z | X DOT | Y DOT | Z DOT |
|---|---|---|---|---|---|---|
| STATE VECTOR (1950.0) | -264.2719688 | -1605.6278534 | -745.3046570 | 1.7818711 | 0.0058837 | -0.6927593 |

LONG -42.4192 DEG
LATI -2.3572 DEG

LONG -42.8440 DEG
LATI -3.7847 DEG

* 45.17252 KM *
(1) (2)

LOW RESOLUTION

33.47575 KM 40.29559 KM

(4) (3)
* 44.57845 KM *

LONG -43.4516 DEG
LATI -1.9656 DEG

LONG -44.0807 DEG
LATI -3.2941 DEG

LONG -42.9960 DEG
LATI -2.5226 DEG

LONG -43.2209 DEG
LATI -3.1270 DEG

* 19.56029 KM *
(1) (2)

HIGH RESOLUTION

4.59983 KM 4.98812 KM

(4) (3)
* 19.52725 KM *

LONG -43.1377 DEG
LATI -2.4683 DEG

LONG -43.3742 DEG
LATI -3.0671 DEG

LOW RESOLUTION 196

| INDEX | LONGITUDE | LATITUDE |
|---|---|---|
| 1 | -42.4191761 | -2.3572400 |
| 2 | -42.4548020 | -2.4752204 |
| 3 | -42.4898272 | -2.5915214 |
| 4 | -42.5246272 | -2.7073649 |
| 5 | -42.5595531 | -2.8239493 |
| 6 | -42.5949817 | -2.9425086 |
| 7 | -42.6312943 | -3.0643592 |
| 8 | -42.6689181 | -3.1909687 |
| 9 | -42.7083454 | -3.3240285 |
| 10 | -42.7501564 | -3.4655637 |
| 11 | -42.7950616 | -3.6180638 |
| 12 | -42.8439522 | -3.7847025 |
| 13 | -42.9643307 | -3.7359965 |
| 14 | -43.0802598 | -3.6892873 |
| 15 | -43.1928282 | -3.6441133 |
| 16 | -43.3030162 | -3.6000671 |
| 17 | -43.4117289 | -3.5567783 |
| 18 | -43.5198131 | -3.5139060 |
| 19 | -43.6280990 | -3.4711174 |
| 20 | -43.7374296 | -3.4280847 |
| 21 | -43.8486762 | -3.3844714 |
| 22 | -43.9627714 | -3.3399223 |
| 23 | -44.0807424 | -3.2940516 |
| 24 | -44.0069146 | -3.1398114 |
| 25 | -43.9394393 | -2.9984547 |
| 26 | -43.8768888 | -2.8670956 |
| 27 | -43.8181524 | -2.7434539 |
| 28 | -43.7623258 | -2.6256784 |
| 29 | -43.7086506 | -2.5122118 |
| 30 | -43.6564817 | -2.4016994 |
| 31 | -43.6052313 | -2.2929226 |
| 32 | -43.5543604 | -2.1847376 |
| 33 | -43.5033350 | -2.0760249 |
| 34 | -43.4516306 | -1.9656396 |
| 35 | -43.3533545 | -2.0031271 |
| 36 | -43.2582269 | -2.0393715 |
| 37 | -43.1654115 | -2.0746964 |
| 38 | -43.0741396 | -2.1093920 |
| 39 | -42.9837012 | -2.1437342 |
| 40 | -42.8934131 | -2.1779816 |
| 41 | -42.8025851 | -2.2123955 |
| 42 | -42.7105212 | -2.2472389 |
| 43 | -42.6164794 | -2.2827875 |
| 44 | -42.5196652 | -2.3193427 |

HIGH RESOLUTION 196

| INDEX | LONGITUDE | LATITUDE |
|---|---|---|
| 1 | -42.9959545 | -2.5226065 |
| 2 | -43.0152464 | -2.5744229 |
| 3 | -43.0346270 | -2.6264860 |
| 4 | -43.0541410 | -2.6789120 |
| 5 | -43.0738325 | -2.7318203 |
| 6 | -43.0937495 | -2.7853357 |
| 7 | -43.1139359 | -2.8395862 |
| 8 | -43.1344471 | -2.8947110 |
| 9 | -43.1553373 | -2.9508534 |
| 10 | -43.1766610 | -3.0081724 |
| 11 | -43.1984801 | -3.0668317 |
| 12 | -43.2208657 | -3.1270168 |
| 13 | -43.2348371 | -3.1215450 |
| 14 | -43.2488012 | -3.1160782 |
| 15 | -43.2627487 | -3.1106192 |
| 16 | -43.2766891 | -3.1051627 |
| 17 | -43.2906260 | -3.0997131 |
| 18 | -43.3045530 | -3.0942652 |
| 19 | -43.3184795 | -3.0888207 |
| 20 | -43.3324065 | -3.0833787 |
| 21 | -43.3463330 | -3.0779368 |
| 22 | -43.3602633 | -3.0724948 |
| 23 | -43.3742003 | -3.0670546 |
| 24 | -43.3506293 | -3.0074483 |
| 25 | -43.3276591 | -2.9493482 |
| 26 | -43.3052220 | -2.8925731 |
| 27 | -43.2832427 | -2.8369583 |
| 28 | -43.2616663 | -2.7823492 |
| 29 | -43.2404346 | -2.7286016 |
| 30 | -43.2194963 | -2.6755806 |
| 31 | -43.1987944 | -2.6231571 |
| 32 | -43.1782832 | -2.5712093 |
| 33 | -43.1579156 | -2.5196175 |
| 34 | -43.1376505 | -2.4682673 |
| 35 | -43.1247754 | -2.4732046 |
| 36 | -43.1119041 | -2.4781420 |
| 37 | -43.0990324 | -2.4830785 |
| 38 | -43.0861645 | -2.4880125 |
| 39 | -43.0732927 | -2.4929481 |
| 40 | -43.0604215 | -2.4978847 |
| 41 | -43.0475464 | -2.5028220 |
| 42 | -43.0346613 | -2.5077637 |
| 43 | -43.0217695 | -2.5127070 |
| 44 | -43.0088673 | -2.5176555 |

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* PHOTO FRAME NUMBER 13 OF 16 *
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## FRAME 197

| | YEAR | MONTH | DAY | HOUR | MINUTE | SECOND |
|---|---|---|---|---|---|---|
| GMT | 67 | 2 | 22 | 5 | 24 | 21.709 |

| | | | | | |
|---|---|---|---|---|---|
| LONGITUDE OF NADIR POINT | = | -42.9393692 | DEG | LATITUDE OF NADIR POINT | = -2.4753211 DEG |
| LONG OF CAMERA AXIS INTERSECT | = | -43.0421166 | DEG | LATI OF CAMERA AXIS INTERSECT | = -2.8352712 DEG |
| SPACECRAFT RADIUS | = | 1789.8407135 | KM | SPACECRAFT ALTITUDE | = 51.7507172 KM |
| MEAN ALTITUDE RATE | = | 0.0212733 | KM/SEC | TIME FROM PERIAPSIS | = 41.5579658 SEC |
| HORIZONTAL VELOCITY | = | 1.9116530 | KM/SEC | TRUE ANOMALY | = 2.5439923 DEG |
| SCALE FACTOR (HIGH) | = | 0.0115055 | M/KM | TILT DISTANCE (HIGH) | = 133.7423286 MM |
| SCALE FACTOR (LOW) | = | 0.0015089 | M/KM | TILT DISTANCE (LOW) | = 17.5399776 MM |
| IMAGE MOTION COMPENSATION (V/H) | = | 0.0360572 | RAD/SEC | SWING ANGLE | = 354.8377151 DEG |
| EMISSION ANGLE | = | 12.7407089 | DEG | INCIDENCE ANGLE | = 71.0517235 DEG |
| PHASE ANGLE | = | 68.1570187 | DEG | NORTH DEVIATION ANGLE | = 338.5382767 DEG |
| TILT ANGLE | = | 12.3664087 | DEG | RESOLUTION CONSTANT | = 1.1504887 MTR |
| TILT AZIMUTH | = | 195.9138813 | DEG | SUN AZIMUTH AT PRINCIPAL GND PT | = 90.5320683 DEG |
| SUN ANGLE AT NADIR | = | 70.9528008 | DEG | SUN ARC AT NADIR | = 2152.3811340 KM |
| LONGITUDE DISTANCE TO TARGET | = | 0.9276309 | DEG | LATITUDE DISTANCE TO TARGET | = -0.0923211 DEG |
| LONGITUDE ARC LENGTH TO TARGET | = | 28.1400483 | KM | LATITUDE ARC LENGTH TO TARGET | = -2.8005977 KM |
| FORWARD OVERLAP RATIO | = | 8.3559180 | PCT | SIDE OVERLAP RATIO | = 0. PCT |
| TIME BETWEEN PHOTOS | = | 2.3000479 | SEC | ALPHA | = 2.4153718 DEG. |

| DIRECTION COSINES TO TARGET | X | Y | Z | MAGNITUDE (KM) |
|---|---|---|---|---|
| CAMERA AXIS | -0.96483999 | 0.24868892 | 0.08507413 | 59.16231585 |
| C1 | -0.76093668 | 0.62786818 | -0.16357537 | 53.01791382 |
| C2 | -0.69982698 | 0.71416663 | -0.01443075 | 51.89619446 |
| C3 | -0.73989248 | 0.58103923 | -0.33904652 | 56.27964783 |
| C4 | -0.79661138 | 0.52058266 | -0.30725233 | 56.17173767 |
| | -0.75654589 | 0.65371006 | 0.01736343 | 51.80465698 |

| STATE VECTOR (1950.0) | X | Y | Z | X DOT | Y DOT | Z DOT |
|---|---|---|---|---|---|---|
| | -260.1730652 | -1605.6106873 | -746.8963165 | 1.7823872 | 0.0090424 | -0.6912920 |

LONG -42.2826 DEG
LATI -2.4081 DEG

LONG -42.7079 DEG
LATI -3.8385 DEG

(1) * 45.26027 KM * (2)

LOW RESOLUTION

33.51021 KM 40.33798 KM

(4) * 44.57871 KM * (3)

LONG -43.3163 DEG
LATI -2.0167 DEG

LONG -43.9452 DEG
LATI -3.3452 DEG

LONG -42.8604 DEG
LATI -2.5738 DEG

LONG -43.0855 DEG
LATI -3.1789 DEG

(1) * 19.58153 KM * (2)

HIGH RESOLUTION

4.60448 KM 4.99320 KM

(4) * 19.54363 KM * (3)

LONG -43.0023 DEG
LATI -2.5194 DEG

LONG -43.2390 DEG
LATI -3.1187 DEG

LOW RESOLUTION 197

| INDEX | LONGITUDE | LATITUDE |
|---|---|---|
| 1 | -42.2825584 | -2.4081300 |
| 2 | -42.3182292 | -2.5263273 |
| 3 | -42.3533020 | -2.6428435 |
| 4 | -42.3881464 | -2.7589054 |
| 5 | -42.4231205 | -2.8757136 |
| 6 | -42.4585929 | -2.9945034 |
| 7 | -42.4949498 | -3.1165948 |
| 8 | -42.5326252 | -3.2434579 |
| 9 | -42.5721073 | -3.3767908 |
| 10 | -42.6139727 | -3.5186214 |
| 11 | -42.6589360 | -3.6714478 |
| 12 | -42.7078915 | -3.8384510 |
| 13 | -42.8285465 | -3.7894034 |
| 14 | -42.9446940 | -3.7423835 |
| 15 | -43.0574331 | -3.6969261 |
| 16 | -43.1677475 | -3.6526186 |
| 17 | -43.2765455 | -3.6090898 |
| 18 | -43.3846745 | -3.5659939 |
| 19 | -43.4929705 | -3.5229953 |
| 20 | -43.6022706 | -3.4797670 |
| 21 | -43.7134457 | -3.4359702 |
| 22 | -43.8274245 | -3.3912486 |
| 23 | -43.9452314 | -3.3452166 |
| 24 | -43.8714447 | -3.1909883 |
| 25 | -43.8040004 | -3.0496350 |
| 26 | -43.7414765 | -2.9182734 |
| 27 | -43.6827645 | -2.7946265 |
| 28 | -43.6269550 | -2.6768407 |
| 29 | -43.5732970 | -2.5633614 |
| 30 | -43.5211415 | -2.4528344 |
| 31 | -43.4699016 | -2.3440406 |
| 32 | -43.4190407 | -2.2358350 |
| 33 | -43.3680258 | -2.1270976 |
| 34 | -43.3163247 | -2.0166867 |
| 35 | -43.2180724 | -2.0541042 |
| 36 | -43.1229382 | -2.0902923 |
| 37 | -43.0300851 | -2.1255710 |
| 38 | -42.9387550 | -2.1602334 |
| 39 | -42.8482313 | -2.1945508 |
| 40 | -42.7578268 | -2.2287855 |
| 41 | -42.6668591 | -2.2631951 |
| 42 | -42.5746241 | -2.2980436 |
| 43 | -42.4803848 | -2.3336092 |
| 44 | -42.3833275 | -2.3701926 |

HIGH RESOLUTION 197

| INDEX | LONGITUDE | LATITUDE |
|---|---|---|
| 1 | -42.8604436 | -2.5737826 |
| 2 | -42.8797526 | -2.6256579 |
| 3 | -42.8991470 | -2.6777790 |
| 4 | -42.9186778 | -2.7302631 |
| 5 | -42.9383864 | -2.7832312 |
| 6 | -42.9583168 | -2.8368063 |
| 7 | -42.9785242 | -2.8911191 |
| 8 | -42.9990487 | -2.9463062 |
| 9 | -43.0199561 | -3.0025127 |
| 10 | -43.0412970 | -3.0598948 |
| 11 | -43.0631328 | -3.1186225 |
| 12 | -43.0855360 | -3.1788759 |
| 13 | -43.0995207 | -3.1733835 |
| 14 | -43.1134953 | -3.1678980 |
| 15 | -43.1274562 | -3.1624177 |
| 16 | -43.1414070 | -3.1569433 |
| 17 | -43.1553540 | -3.1514740 |
| 18 | -43.1692944 | -3.1460073 |
| 19 | -43.1832280 | -3.1405448 |
| 20 | -43.1971617 | -3.1350841 |
| 21 | -43.2110953 | -3.1296242 |
| 22 | -43.2250357 | -3.1241652 |
| 23 | -43.2389760 | -3.1187062 |
| 24 | -43.2153950 | -3.0590470 |
| 25 | -43.1924114 | -3.0008956 |
| 26 | -43.1699572 | -2.9440710 |
| 27 | -43.1479707 | -2.8884067 |
| 28 | -43.1263804 | -2.8337498 |
| 29 | -43.1051354 | -2.7799544 |
| 30 | -43.0841837 | -2.7268864 |
| 31 | -43.0634675 | -2.6744169 |
| 32 | -43.0429463 | -2.6224229 |
| 33 | -43.0225687 | -2.5707858 |
| 34 | -43.0022898 | -2.5193895 |
| 35 | -42.9894009 | -2.5243312 |
| 36 | -42.9765158 | -2.5292719 |
| 37 | -42.9636378 | -2.5342119 |
| 38 | -42.9507561 | -2.5391510 |
| 39 | -42.9378743 | -2.5440917 |
| 40 | -42.9249854 | -2.5490325 |
| 41 | -42.9120970 | -2.5539767 |
| 42 | -42.8991981 | -2.5589218 |
| 43 | -42.8862891 | -2.5638720 |
| 44 | -42.8733730 | -2.5688247 |

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* PHOTO FRAME NUMBER 14 OF 16 *
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## FRAME 198

| | YEAR | MONTH | DAY | HOUR | MINUTE | SECOND |
|---|---|---|---|---|---|---|
| GMT | 67 | 2 | 22 | 5 | 24 | 24.180 |

| | | | | | |
|---|---|---|---|---|---|
| LONGITUDE OF NADIR POINT | = | -42.8022118 | DEG | LATITUDE OF NADIR POINT | = -2.5270419 DEG |
| LONG OF CAMERA AXIS INTERSECT | = | -42.9009366 | DEG | LATI OF CAMERA AXIS INTERSECT | = -2.8889292 DEG |
| SPACECRAFT RADIUS | = | 1789.8932190 | KM | SPACECRAFT ALTITUDE | = 51.8032227 KM |
| MEAN ALTITUDE RATE | = | 0.0224950 | KM/SEC | TIME FROM PERIAPSIS | = 43.9550796 SEC |
| HORIZONTAL VELOCITY | = | 1.9115973 | KM/SEC | TRUE ANOMALY | = 2.6906799 DEG |
| SCALE FACTOR (HIGH) | = | 0.0114933 | M/KM | TILT DISTANCE (HIGH) | = 133.8866081 MM |
| SCALE FACTOR (LOW) | = | 0.0015073 | M/KM | TILT DISTANCE (LOW) | = 17.5588994 MM |
| IMAGE MOTION COMPENSATION (V/H) | = | 0.0360174 | RAD/SEC | SWING ANGLE | = 354.1553C01 DEG |
| EMISSION ANGLE | = | 12.7544253 | DEG | INCIDENCE ANGLE | = 70.9098997 DEG |
| PHASE ANGLE | = | 68.1570196 | DEG | NORTH DEVIATION ANGLE | = 338.5421638 DEG |
| TILT ANGLE | = | 12.3793384 | DEG | RESOLUTION CONSTANT | = 1.1517158 MTR |
| TILT AZIMUTH | = | 195.2413921 | DEG | SUN AZIMUTH AT PRINCIPAL GND PT | = 90.5069466 DEG |
| SUN ANGLE AT NADIR | = | 70.8148708 | DEG | SUN ARC AT NADIR | = 2148.1969604 KM |
| LONGITUDE DISTANCE TO TARGET | = | 1.0647883 | DEG | LATITUDE DISTANCE TO TARGET | = -0.1440419 DEG |
| LONGITUDE ARC LENGTH TO TARGET | = | 32.3007731 | KM | LATITUDE ARC LENGTH TO TARGET | = -4.3695676 KM |
| FORWARD OVERLAP RATIO | = | 4.5147011 | PCT | SIDE OVERLAP RATIO | = 0. PCT |
| TIME BETWEEN PHOTOS | = | 2.3999870 | SEC | ALPHA | = 2.2664013 DEG. |

| | X | Y | Z | MAGNITUDE (KM) |
|---|---|---|---|---|
| DIRECTION COSINES TO TARGET | -0.97615246 | 0.18818915 | 0.10821838 | 61.44651890 |
| CAMERA AXIS | -0.76093299 | 0.62787268 | -0.16357531 | 53.07446289 |
| C1 | -0.69982277 | 0.71417075 | -0.01443069 | 51.95774841 |
| C2 | -0.73988906 | 0.58104362 | -0.33904646 | 56.34681702 |
| C3 | -0.79660832 | 0.52058739 | -0.30725227 | 56.22442627 |
| C4 | -0.75654203 | 0.65371452 | 0.01736349 | 51.85392761 |

| | X | Y | Z | X DOT | Y DOT | Z DOT |
|---|---|---|---|---|---|---|
| STATE VECTOR (1950.0) | -255.8964806 | -1605.5850372 | -748.5528870 | 1.7829169 | 0.0123366 | -0.6897583 |

LONG -42.1400 DEG
LATI -2.4612 DEG

(1) * 45.35484 KM * (2)

LONG -42.5659 DEG
LATI -3.8946 DEG

LOW RESOLUTION

33.54854 KM 40.38528 KM

(4) * 44.58179 KM * (3)

LONG -43.1752 DEG
LATI -2.0699 DEG

LONG -43.8039 DEG
LATI -3.3986 DEG

LONG -42.7191 DEG
LATI -2.6272 DEG

(1) * 19.60492 KM * (2)

LONG -42.9444 DEG
LATI -3.2330 DEG

HIGH RESOLUTION

4.60966 KM 4.99885 KM

(4) * 19.56193 KM * (3)

LONG -42.8611 DEG
LATI -2.5727 DEG

LONG -43.0979 DEG
LATI -3.1726 DEG

LOW RESOLUTION 198

| INDEX | LONGITUDE | LATITUDE |
|---|---|---|
| 1 | -42.1400023 | -2.4611912 |
| 2 | -42.1757240 | -2.5796215 |
| 3 | -42.2108450 | -2.6963716 |
| 4 | -42.2457371 | -2.8126693 |
| 5 | -42.2807589 | -2.9297182 |
| 6 | -42.3162827 | -3.0487556 |
| 7 | -42.3526940 | -3.1711065 |
| 8 | -42.3904209 | -3.2982445 |
| 9 | -42.4299574 | -3.4318703 |
| 10 | -42.4718843 | -3.5740194 |
| 11 | -42.5169125 | -3.7271966 |
| 12 | -42.5659432 | -3.8945926 |
| 13 | -42.6868954 | -3.8451830 |
| 14 | -42.8032751 | -3.7978361 |
| 15 | -42.9162021 | -3.7520781 |
| 16 | -43.0266562 | -3.7074941 |
| 17 | -43.1355500 | -3.6637117 |
| 18 | -43.2437334 | -3.6203776 |
| 19 | -43.3520465 | -3.5771587 |
| 20 | -43.4613228 | -3.5337230 |
| 21 | -43.5724297 | -3.4897323 |
| 22 | -43.6862955 | -3.4448289 |
| 23 | -43.8039422 | -3.3986270 |
| 24 | -43.7301931 | -3.2443978 |
| 25 | -43.6627755 | -3.1030385 |
| 26 | -43.6002793 | -2.9716667 |
| 27 | -43.5415845 | -2.8480061 |
| 28 | -43.4857917 | -2.7302033 |
| 29 | -43.4321475 | -2.6167043 |
| 30 | -43.3800025 | -2.5061543 |
| 31 | -43.3287725 | -2.3973357 |
| 32 | -43.2779183 | -2.2891020 |
| 33 | -43.2269106 | -2.1803338 |
| 34 | -43.1752129 | -2.0698888 |
| 35 | -43.0769777 | -2.1072354 |
| 36 | -42.9818296 | -2.1433654 |
| 37 | -42.8889360 | -2.1786006 |
| 38 | -42.7975345 | -2.2132297 |
| 39 | -42.7069111 | -2.2475241 |
| 40 | -42.6163840 | -2.2817459 |
| 41 | -42.5252624 | -2.3161530 |
| 42 | -42.4328432 | -2.3510091 |
| 43 | -42.3383851 | -2.3865944 |
| 44 | -42.2410717 | -2.4232093 |

HIGH RESOLUTION 198

| INDEX | LONGITUDE | LATITUDE |
|---|---|---|
| 1 | -42.7190828 | -2.6271528 |
| 2 | -42.7384086 | -2.6790921 |
| 3 | -42.7578235 | -2.7312765 |
| 4 | -42.7773681 | -2.7838263 |
| 5 | -42.7970972 | -2.8368601 |
| 6 | -42.8170447 | -2.8905010 |
| 7 | -42.8372688 | -2.9448804 |
| 8 | -42.8578138 | -3.0001366 |
| 9 | -42.8787384 | -3.0564140 |
| 10 | -42.9000964 | -3.1138678 |
| 11 | -42.9219527 | -3.1726681 |
| 12 | -42.9443765 | -3.2329974 |
| 13 | -42.9583783 | -3.2274837 |
| 14 | -42.9723630 | -3.2219769 |
| 15 | -42.9863377 | -3.2164761 |
| 16 | -43.0003018 | -3.2109812 |
| 17 | -43.0142593 | -3.2054914 |
| 18 | -43.0282102 | -3.2000051 |
| 19 | -43.0421538 | -3.1945221 |
| 20 | -43.0561013 | -3.1890417 |
| 21 | -43.0700450 | -3.1835631 |
| 22 | -43.0839891 | -3.1780853 |
| 23 | -43.0979395 | -3.1726057 |
| 24 | -43.0743413 | -3.1128894 |
| 25 | -43.0513439 | -3.0546817 |
| 26 | -43.0288763 | -2.9978007 |
| 27 | -43.0068727 | -2.9420817 |
| 28 | -42.9852686 | -2.8873702 |
| 29 | -42.9640131 | -2.8335227 |
| 30 | -42.9430447 | -2.7804026 |
| 31 | -42.9223151 | -2.7278819 |
| 32 | -42.9017801 | -2.6758358 |
| 33 | -42.8813887 | -2.6241475 |
| 34 | -42.8610926 | -2.5727000 |
| 35 | -42.8481936 | -2.5776468 |
| 36 | -42.8352947 | -2.5825918 |
| 37 | -42.8224030 | -2.5875369 |
| 38 | -42.8095074 | -2.5924802 |
| 39 | -42.7966089 | -2.5974261 |
| 40 | -42.7837100 | -2.6023720 |
| 41 | -42.7708011 | -2.6073222 |
| 42 | -42.7578883 | -2.6122741 |
| 43 | -42.7449622 | -2.6172294 |
| 44 | -42.7320294 | -2.6221890 |

**********
* PHOTO FRAME NUMBER 15 OF 16 *
**********

## FRAME 199

| | YEAR | MONTH | DAY | HOUR | MINUTE | SECOND |
|---|---|---|---|---|---|---|
| GMT | 67 | 2 | 22 | 5 | 24 | 26.500 |

| | | | | | |
|---|---|---|---|---|---|
| LONGITUDE OF NADIR POINT | = | -42.6649399 | DEG | LATITUDE OF NADIR POINT | = | -2.5787883 DEG |
| LONG OF CAMERA AXIS INTERSECT | = | -42.7596302 | DEG | LATI OF CAMERA AXIS INTERSECT | = | -2.9426401 DEG |
| SPACECRAFT RADIUS | = | 1789.9487152 | KM | SPACECRAFT ALTITUDE | = | 51.8587189 KM |
| MEAN ALTITUDE RATE | = | 0.0237256 | KM/SEC | TIME FROM PERIAPSIS | = | 46.3542109 SEC |
| HORIZONTAL VELOCITY | = | 1.9115385 | KM/SEC | TRUE ANOMALY | = | 2.8374826 DEG |
| SCALE FACTOR (HIGH) | = | 0.0114803 | M/KM | TILT DISTANCE (HIGH) | = | 134.0499344 MM |
| SCALE FACTOR (LOW) | = | 0.0015056 | M/KM | TILT DISTANCE (LOW) | = | 17.5803194 MM |
| IMAGE MOTION COMPENSATION (V/H) | = | 0.0359751 | RAD/SEC | SWING ANGLE | = | 353.4739876 DEG |
| EMISSION ANGLE | = | 12.7699215 | DEG | INCIDENCE ANGLE | = | 70.7679834 DEG |
| PHASE ANGLE | = | 68.1570206 | DEG | NORTH DEVIATION ANGLE | = | 338.5463333 DEG |
| TILT ANGLE | = | 12.3939734 | DEG | RESOLUTION CONSTANT | = | 1.1530171 MTR |
| TILT AZIMUTH | = | 194.5697536 | DEG | SUN AZIMUTH AT PRINCIPAL GND PT | = | 90.4815025 DEG |
| SUN ANGLE AT NADIR | = | 70.6768484 | DEG | SUN ARC AT NADIR | = | 2144.0100098 KM |
| LONGITUDE DISTANCE TO TARGET | = | 1.2020602 | DEG | LATITUDE DISTANCE TO TARGET | = | -0.1957883 DEG |
| LONGITUDE ARC LENGTH TO TARGET | = | 36.4649692 | KM | LATITUDE ARC LENGTH TO TARGET | = | -5.9393140 KM |
| FORWARD OVERLAP RATIO | = | 4.5416383 | PCT | SIDE OVERLAP RATIO | = | 0. PCT |
| TIME BETWEEN PHOTOS | = | 2.3999867 | SEC | ALPHA | = | 2.1172645 DEG. |

| | X | Y | Z | MAGNITUDE (KM) |
|---|---|---|---|---|
| DIRECTION COSINES TO TARGET | -0.98287100 | 0.13139394 | 0.12922934 | 63.97199678 |
| CAMERA AXIS | -0.76092931 | 0.62787716 | -0.16357522 | 53.13442993 |
| C1 | -0.69981858 | 0.71417486 | -0.01443060 | 52.02267456 |
| C2 | -0.73988566 | 0.58104800 | -0.33904639 | 56.41766357 |
| C3 | -0.79660527 | 0.52059209 | -0.30725220 | 56.28073120 |
| C4 | -0.75653820 | 0.65371895 | 0.01736357 | 51.90652466 |

| | X | Y | Z | X DOT | Y DOT | Z DOT |
|---|---|---|---|---|---|---|
| STATE VECTOR (1950.0) | -251.6150665 | -1605.5514679 | -750.2071533 | 1.7834382 | 0.0156333 | -0.6882201 |

LONG -41.9973 DEG
LATI -2.5143 DEG

(1) • 45.45263 KM • (2)

LONG -42.4238 DEG
LATI -3.9509 DEG

LOW RESOLUTION

33.58934 KM 40.43573 KM

(4) • 44.58774 KM • (3)

LONG -43.0340 DEG
LATI -2.1231 DEG

LONG -43.6626 DEG
LATI -3.4521 DEG

LONG -42.5776 DEG
LATI -2.6806 DEG

(1) • 19.62958 KM • (2)

LONG -42.8031 DEG
LATI -3.2872 DEG

HIGH RESOLUTION

4.61517 KM 5.00487 KM

(4) • 19.58149 KM • (3)

LONG -42.7198 DEG
LATI -2.6260 DEG

LONG -42.9568 DEG
LATI -3.2266 DEG

LOW RESOLUTION 199

| INDEX | LONGITUDE | LATITUDE |
|---|---|---|
| 1 | -41.9972649 | -2.5142763 |
| 2 | -42.0330381 | -2.6329482 |
| 3 | -42.0682101 | -2.7499400 |
| 4 | -42.1031532 | -2.8664818 |
| 5 | -42.1382265 | -2.9837792 |
| 6 | -42.1738014 | -3.1030736 |
| 7 | -42.2102642 | -3.2256925 |
| 8 | -42.2480488 | -3.3531131 |
| 9 | -42.2876434 | -3.4870429 |
| 10 | -42.3296356 | -3.6295206 |
| 11 | -42.3747287 | -3.7830599 |
| 12 | -42.4238343 | -3.9508597 |
| 13 | -42.5450907 | -3.9010830 |
| 14 | -42.6617227 | -3.8534031 |
| 15 | -42.7748408 | -3.8073421 |
| 16 | -42.8854423 | -3.7624788 |
| 17 | -42.9944382 | -3.7184369 |
| 18 | -43.1026902 | -3.6748620 |
| 19 | -43.2110238 | -3.6314194 |
| 20 | -43.3202829 | -3.5877737 |
| 21 | -43.4313350 | -3.5435857 |
| 22 | -43.5450950 | -3.4984971 |
| 23 | -43.6625915 | -3.4521218 |
| 24 | -43.5888729 | -3.2978834 |
| 25 | -43.5214796 | -3.1565095 |
| 26 | -43.4590039 | -3.0251189 |
| 27 | -43.4003258 | -2.9014344 |
| 28 | -43.3445468 | -2.7836077 |
| 29 | -43.2909131 | -2.6700814 |
| 30 | -43.2387748 | -2.5595032 |
| 31 | -43.1875515 | -2.4506513 |
| 32 | -43.1367011 | -2.3423826 |
| 33 | -43.0856929 | -2.2335760 |
| 34 | -43.0339990 | -2.1230891 |
| 35 | -42.9357738 | -2.1603675 |
| 36 | -42.8406053 | -2.1964436 |
| 37 | -42.7476602 | -2.2316353 |
| 38 | -42.6561832 | -2.2662337 |
| 39 | -42.5654545 | -2.3005075 |
| 40 | -42.4747939 | -2.3347183 |
| 41 | -42.3835120 | -2.3691253 |
| 42 | -42.2909050 | -2.4039918 |
| 43 | -42.1962180 | -2.4395984 |
| 44 | -42.0986452 | -2.4762475 |

HIGH RESOLUTION 199

| INDEX | LONGITUDE | LATITUDE |
|---|---|---|
| 1 | -42.5775819 | -2.6805598 |
| 2 | -42.5969248 | -2.7325640 |
| 3 | -42.6163602 | -2.7848175 |
| 4 | -42.6359253 | -2.8374355 |
| 5 | -42.6556711 | -2.8905377 |
| 6 | -42.6756425 | -2.9442486 |
| 7 | -42.6958838 | -2.9986997 |
| 8 | -42.7164497 | -3.0540268 |
| 9 | -42.7373943 | -3.1103776 |
| 10 | -42.7587729 | -3.1679083 |
| 11 | -42.7806501 | -3.2267854 |
| 12 | -42.8030939 | -3.2871941 |
| 13 | -42.8171096 | -3.2816591 |
| 14 | -42.8311114 | -3.2761309 |
| 15 | -42.8450994 | -3.2706096 |
| 16 | -42.8590775 | -3.2650933 |
| 17 | -42.8730454 | -3.2595822 |
| 18 | -42.8870096 | -3.2540754 |
| 19 | -42.9009671 | -3.2485728 |
| 20 | -42.9149213 | -3.2430728 |
| 21 | -42.9288754 | -3.2375745 |
| 22 | -42.9428296 | -3.2320762 |
| 23 | -42.9567871 | -3.2265796 |
| 24 | -42.9331751 | -3.1667992 |
| 25 | -42.9101605 | -3.1085300 |
| 26 | -42.8876791 | -3.0515910 |
| 27 | -42.8656588 | -2.9958131 |
| 28 | -42.8440409 | -2.9410444 |
| 29 | -42.8227649 | -2.8871397 |
| 30 | -42.8017826 | -2.8339650 |
| 31 | -42.7810392 | -2.7813879 |
| 32 | -42.7604871 | -2.7292872 |
| 33 | -42.7400784 | -2.6775442 |
| 34 | -42.7197690 | -2.6260421 |
| 35 | -42.7068567 | -2.6309939 |
| 36 | -42.6939478 | -2.6359433 |
| 37 | -42.6810384 | -2.6408926 |
| 38 | -42.6681261 | -2.6458428 |
| 39 | -42.6552134 | -2.6507938 |
| 40 | -42.6422977 | -2.6557465 |
| 41 | -42.6293750 | -2.6607018 |
| 42 | -42.6164422 | -2.6656597 |
| 43 | -42.6035023 | -2.6706201 |
| 44 | -42.5905490 | -2.6755874 |

**********
* PHOTO FRAME NUMBER 16 OF 16 *
**********

## FRAME 200

| | YEAR | MONTH | DAY | HOUR | MINUTE | SECOND |
|---|---|---|---|---|---|---|
| GMT | 67 | 2 | 22 | 5 | 24 | 28.900 |

| | | | | | |
|---|---|---|---|---|---|
| LONGITUDE OF NADIR POINT | = | -42.5277214 | DEG | LATITUDE OF NADIR POINT | = | -2.6304945 | DEG |
| LONG OF CAMERA AXIS INTERSECT | = | -42.6183748 | DEG | LATI OF CAMERA AXIS INTERSECT | = | -2.9963356 | DEG |
| SPACECRAFT RADIUS | = | 1790.0071259 | KM | SPACECRAFT ALTITUDE | = | 51.9171295 | KM |
| MEAN ALTITUDE RATE | = | 0.0249515 | KM/SEC | TIME FROM PERIAPSIS | = | 48.7523041 | SEC |
| HORIZONTAL VELOCITY | = | 1.9114766 | KM/SEC | TRUE ANOMALY | = | 2.9842122 | DEG |
| SCALE FACTOR (HIGH) | = | 0.0114666 | M/KM | TILT DISTANCE (HIGH) | = | 134.2321148 | MM |
| SCALE FACTOR (LOW) | = | 0.0015038 | M/KM | TILT DISTANCE (LOW) | = | 17.6042118 | MM |
| IMAGE MOTION COMPENSATION (V/H) | = | 0.0359305 | RAD/SEC | SWING ANGLE | = | 352.7945747 | DEG |
| EMISSION ANGLE | = | 12.7871779 | DEG | INCIDENCE ANGLE | = | 70.6261492 | DEG |
| PHASE ANGLE | = | 68.1570215 | DEG | NORTH DEVIATION ANGLE | = | 338.5507698 | DEG |
| TILT ANGLE | = | 12.4102957 | DEG | RESOLUTION CONSTANT | = | 1.1543916 | MTR |
| TILT AZIMUTH | = | 193.89999C1 | DEG | SUN AZIMUTH AT PRINCIPAL GND PT | = | 90.4557667 | DEG |
| SUN ANGLE AT NADIR | = | 70.5389090 | DEG | SUN ARC AT NADIR | = | 2139.8255615 | KM |
| LONGITUDE DISTANCE TO TARGET | = | 1.3392787 | DEG | LATITUDE DISTANCE TO TARGET | = | -0.2474945 | DEG |
| LONGITUDE ARC LENGTH TO TARGET | = | 40.6275458 | KM | LATITUDE ARC LENGTH TO TARGET | = | -7.5078426 | KM |
| FORWARD OVERLAP RATIO | = | 4.6970173 | PCT | SIDE OVERLAP RATIO | = | 0. | PCT |
| TIME BETWEEN PHOTOS | = | 2.3999872 | SEC | ALPHA | = | 1.9681483 | DEG. |

| DIRECTION COSINES TO TARGET | X | Y | Z | MAGNITUDE (KM) |
|---|---|---|---|---|
| CAMERA AXIS | -0.98583572 | 0.07859453 | 0.14815811 | 66.70845699 |
| C1 | -0.76092561 | 0.62788167 | -0.16357514 | 53.19776917 |
| C2 | -0.69981436 | 0.71417899 | -0.01443050 | 52.09091187 |
| C3 | -0.73988224 | 0.58105239 | -0.33904631 | 56.49211121 |
| C4 | -0.79660222 | 0.52059682 | -0.30725212 | 56.34059143 |
| | -0.75653434 | 0.65372342 | 0.01736367 | 51.96240234 |

| STATE VECTOR (1950.0) | X | Y | Z | X DOT | Y DOT | Z DOT |
|---|---|---|---|---|---|---|
| | -247.3342094 | -1605.5099945 | -751.8570251 | 1.7839504 | 0.0189281 | -0.6866793 |

LONG -41.8545 DEG
LATI -2.5673 DEG

LONG -42.2817 DEG
LATI -4.0072 DEG

* 45.55351 KM *
(1) (2)

LOW RESOLUTION

33.63257 KM 40.48931 KM

(4) (3)
* 44.59653 KM *

LONG -42.8929 DEG
LATI -2.1762 DEG

LONG -43.5214 DEG
LATI -3.5056 DEG

LONG -42.4361 DEG
LATI -2.7339 DEG

LONG -42.6619 DEG
LATI -3.3414 DEG

* 19.65550 KM *
(1) (2)

HIGH RESOLUTION

4.62101 KM 5.01126 KM

(4) (3)
* 19.60228 KM *

LONG -42.5785 DEG
LATI -2.6793 DEG

LONG -42.8157 DEG
LATI -3.2806 DEG

LOW RESOLUTION 200

| INDEX | LONGITUDE | LATITUDE |
|---|---|---|
| 1 | -41.8545275 | -2.5673195 |
| 2 | -41.8903551 | -2.6862399 |
| 3 | -41.9255786 | -2.8034827 |
| 4 | -41.9605765 | -2.9202755 |
| 5 | -41.9957042 | -3.0378290 |
| 6 | -42.0313306 | -3.1573889 |
| 7 | -42.0678515 | -3.2802845 |
| 8 | -42.1056910 | -3.4079971 |
| 9 | -42.1453466 | -3.5422393 |
| 10 | -42.1874003 | -3.6850552 |
| 11 | -42.2325683 | -3.8389675 |
| 12 | -42.2817492 | -4.0071848 |
| 13 | -42.4033232 | -3.9570359 |
| 14 | -42.5202079 | -3.9090180 |
| 15 | -42.6335311 | -3.8626478 |
| 16 | -42.7442894 | -3.8175028 |
| 17 | -42.8533983 | -3.7731979 |
| 18 | -42.9617181 | -3.7293805 |
| 19 | -43.0700860 | -3.6857100 |
| 20 | -43.1793385 | -3.6418500 |
| 21 | -43.2903357 | -3.5974631 |
| 22 | -43.4040036 | -3.5521867 |
| 23 | -43.5213532 | -3.5056364 |
| 24 | -43.4476624 | -3.3513765 |
| 25 | -43.3802929 | -3.2099788 |
| 26 | -43.3178306 | -3.0785609 |
| 27 | -43.2591662 | -2.9548482 |
| 28 | -43.2033944 | -2.8369882 |
| 29 | -43.1497703 | -2.7234269 |
| 30 | -43.0976357 | -2.6128111 |
| 31 | -43.0464163 | -2.5039208 |
| 32 | -42.9955654 | -2.3956102 |
| 33 | -42.9445577 | -2.2867575 |
| 34 | -42.8928561 | -2.1762229 |
| 35 | -42.7946382 | -2.2134354 |
| 36 | -42.6994424 | -2.2494587 |
| 37 | -42.6064425 | -2.2846103 |
| 38 | -42.5148807 | -2.3191787 |
| 39 | -42.4240422 | -2.3534338 |
| 40 | -42.3332453 | -2.3876369 |
| 41 | -42.2417960 | -2.4220465 |
| 42 | -42.1489873 | -2.4569257 |
| 43 | -42.0540714 | -2.4925554 |
| 44 | -41.9562259 | -2.5292395 |

HIGH RESOLUTION 200

| INDEX | LONGITUDE | LATITUDE |
|---|---|---|
| 1 | -42.4361248 | -2.7339334 |
| 2 | -42.4554887 | -2.7860085 |
| 3 | -42.4749446 | -2.8383337 |
| 4 | -42.4945302 | -2.8910227 |
| 5 | -42.5142965 | -2.9441974 |
| 6 | -42.5342851 | -2.9979809 |
| 7 | -42.5545468 | -3.0525071 |
| 8 | -42.5751367 | -3.1079102 |
| 9 | -42.5960984 | -3.1643386 |
| 10 | -42.6175008 | -3.2219479 |
| 11 | -42.6393981 | -3.2809078 |
| 12 | -42.6618662 | -3.3413993 |
| 13 | -42.6758990 | -3.3358413 |
| 14 | -42.6899142 | -3.3302909 |
| 15 | -42.7039199 | -3.3247482 |
| 16 | -42.7179112 | -3.3192106 |
| 17 | -42.7318959 | -3.3136790 |
| 18 | -42.7458706 | -3.3081517 |
| 19 | -42.7598386 | -3.3026278 |
| 20 | -42.7738061 | -3.2971073 |
| 21 | -42.7877703 | -3.2915885 |
| 22 | -42.8017383 | -3.2860714 |
| 23 | -42.8157024 | -3.2805543 |
| 24 | -42.7920737 | -3.2207091 |
| 25 | -42.7690420 | -3.1623750 |
| 26 | -42.7465434 | -3.1053719 |
| 27 | -42.7245059 | -3.0495326 |
| 28 | -42.7028680 | -2.9947032 |
| 29 | -42.6815782 | -2.9407387 |
| 30 | -42.6605787 | -2.8875034 |
| 31 | -42.6398182 | -2.8348691 |
| 32 | -42.6192493 | -2.7827095 |
| 33 | -42.5988269 | -2.7309085 |
| 34 | -42.5785003 | -2.6793500 |
| 35 | -42.5655708 | -2.6843053 |
| 36 | -42.5526481 | -2.6892606 |
| 37 | -42.5397253 | -2.6942159 |
| 38 | -42.5267992 | -2.6991720 |
| 39 | -42.5138698 | -2.7041290 |
| 40 | -42.5009332 | -2.7090878 |
| 41 | -42.4879932 | -2.7140482 |
| 42 | -42.4750433 | -2.7190129 |
| 43 | -42.4620833 | -2.7239810 |
| 44 | -42.4491124 | -2.7289542 |

**********
* PHOTO FRAME NUMBER 1 OF 4 *
**********

## FRAME 201

| | YEAR | MONTH | DAY | HOUR | MINUTE | SECOND |
|---|---|---|---|---|---|---|
| GMT | 67 | 2 | 22 | 8 | 53 | 12.400 |

| | | | | | |
|---|---|---|---|---|---|
| LONGITUDE OF NADIR POINT | = | -43.4813614 | DEG | LATITUDE OF NADIR POINT | = -2.7853998 DEG |
| LONG OF CAMERA AXIS INTERSECT | = | -43.5157080 | DEG | LATI OF CAMERA AXIS INTERSECT | = -2.9091893 DEG |
| SPACECRAFT RADIUS | = | 1790.9349060 | KM | SPACECRAFT ALTITUDE | = 52.8449097 KM |
| MEAN ALTITUDE RATE | = | 0.0331221 | KM/SEC | TIME FROM PERIAPSIS | = 64.8154573 SEC |
| HORIZONTAL VELOCITY | = | 1.9106164 | KM/SEC | TRUE ANOMALY | = 3.9649961 DEG |
| SCALE FACTOR (HIGH) | = | 0.0115110 | M/KM | TILT DISTANCE (HIGH) | = 44.9782376 MM |
| SCALE FACTOR (LOW) | = | 0.0015096 | M/KM | TILT DISTANCE (LOW) | = 5.8987853 MM |
| IMAGE MOTION COMPENSATION (V/H) | = | 0.0360577 | RAD/SEC | SWING ANGLE | = 354.4431496 DEG |
| EMISSION ANGLE | = | 4.3455346 | DEG | INCIDENCE ANGLE | = 69.7656975 DEG |
| PHASE ANGLE | = | 68.6954538 | DEG | NORTH DEVIATION ANGLE | = 338.9085350 DEG |
| TILT ANGLE | = | 4.2170624 | DEG | RESOLUTION CONSTANT | = 1.1499427 MTR |
| TILT AZIMUTH | = | 195.4902802 | DEG | SUN AZIMUTH AT PRINCIPAL GND PT | = 90.4428272 DEG |
| SUN ANGLE AT NADIR | = | 69.7323933 | DEG | SUN ARC AT NADIR | = 2115.3595886 KM |
| LONGITUDE DISTANCE TO TARGET | = | 0.3856387 | DEG | LATITUDE DISTANCE TO TARGET | = -0.4023998 DEG |
| LONGITUDE ARC LENGTH TO TARGET | = | 11.6985021 | KM | LATITUDE ARC LENGTH TO TARGET | = -12.2069556 KM |
| FORWARD OVERLAP RATIO | = | 0. | PCT | SIDE OVERLAP RATIO | = 0. PCT |
| TIME BETWEEN PHOTOS | = | 0. | SEC | ALPHA | = 1.0126543 DEG. |

| | X | Y | Z | MAGNITUDE (KM) |
|---|---|---|---|---|
| DIRECTION COSINES TO TARGET | -0.82742196 | 0.49474486 | 0.26570741 | 55.55943918 |
| CAMERA AXIS | -0.73879174 | 0.67356423 | -0.02231581 | 52.99275208 |
| C1 | -0.65828919 | 0.74199323 | 0.12689124 | 53.21609497 |
| C2 | -0.73824145 | 0.64338098 | -0.20263387 | 54.68356323 |
| C3 | -0.79459948 | 0.58262072 | -0.17077694 | 54.64668274 |
| C4 | -0.71464723 | 0.68123297 | 0.15874816 | 53.18121338 |

| | X | Y | Z | X DOT | Y DOT | Z DOT |
|---|---|---|---|---|---|---|
| STATE VECTOR (1950.0) | -217.7552929 | -1608.1096802 | -757.6369476 | 1.7830329 | 0.0447816 | -0.6858141 |

LONG -42.7186 DEG
LATI -2.4710 DEG

LONG -43.1987 DEG
LATI -3.8247 DEG

* 43.56289 KM *
(1) (2)

LOW RESOLUTION

35.47186 KM 37.74293 KM

(4) (3)
* 43.33929 KM *

LONG -43.8119 DEG
LATI -2.0541 DEG

LONG -44.3606 DEG
LATI -3.3736 DEG

LONG -43.3314 DEG
LATI -2.6473 DEG

LONG -43.5557 DEG
LATI -3.2360 DEG

* 19.10619 KM *
(1) (2)

HIGH RESOLUTION

4.72341 KM 4.85362 KM

(4) (3)
* 19.09340 KM *

LONG -43.4769 DEG
LATI -2.5915 DEG

LONG -43.7051 DEG
LATI -3.1782 DEG

LOW RESOLUTION 201

| INDEX | LONGITUDE | LATITUDE |
|---|---|---|
| 1 | -42.7185636 | -2.4710190 |
| 2 | -42.7636256 | -2.5965604 |
| 3 | -42.8069806 | -2.7176409 |
| 4 | -42.8491569 | -2.8356956 |
| 5 | -42.8906159 | -2.9520214 |
| 6 | -42.9318056 | -3.0678409 |
| 7 | -42.9731488 | -3.1843520 |
| 8 | -43.0150790 | -3.3027857 |
| 9 | -43.0580549 | -3.4244578 |
| 10 | -43.1025844 | -3.5508257 |
| 11 | -43.1492448 | -3.6835739 |
| 12 | -43.1987257 | -3.8247086 |
| 13 | -43.3109970 | -3.7805489 |
| 14 | -43.4193001 | -3.7380643 |
| 15 | -43.5246387 | -3.6968518 |
| 16 | -43.6279044 | -3.6565537 |
| 17 | -43.7299266 | -3.6168387 |
| 18 | -43.8314953 | -3.5774012 |
| 19 | -43.9333878 | -3.5379380 |
| 20 | -44.0363836 | -3.4981471 |
| 21 | -44.1413093 | -3.4577175 |
| 22 | -44.2490449 | -3.4163154 |
| 23 | -44.3605647 | -3.3735772 |
| 24 | -44.3028703 | -3.2364817 |
| 25 | -44.2487102 | -3.1074321 |
| 26 | -44.1972518 | -2.9844938 |
| 27 | -44.1477876 | -2.8660429 |
| 28 | -44.0997200 | -2.7506640 |
| 29 | -44.0525165 | -2.6370848 |
| 30 | -44.0056682 | -2.5241083 |
| 31 | -43.9586935 | -2.4105650 |
| 32 | -43.9111009 | -2.2952603 |
| 33 | -43.8623676 | -2.1769230 |
| 34 | -43.8119302 | -2.0541469 |
| 35 | -43.7072916 | -2.0944570 |
| 36 | -43.6061330 | -2.1333447 |
| 37 | -43.5075426 | -2.1711660 |
| 38 | -43.4107008 | -2.2082394 |
| 39 | -43.3148427 | -2.2448629 |
| 40 | -43.2192369 | -2.2813164 |
| 41 | -43.1231565 | -2.3178776 |
| 42 | -43.0258641 | -2.3548238 |
| 43 | -42.9265804 | -2.3924479 |
| 44 | -42.8244586 | -2.4310641 |

HIGH RESOLUTION 201

| INDEX | LONGITUDE | LATITUDE |
|---|---|---|
| 1 | -43.3313680 | -2.6472985 |
| 2 | -43.3515887 | -2.7003468 |
| 3 | -43.3717074 | -2.7531374 |
| 4 | -43.3917742 | -2.8057870 |
| 5 | -43.4118276 | -2.8584111 |
| 6 | -43.4319153 | -2.9111230 |
| 7 | -43.4520779 | -2.9640408 |
| 8 | -43.4723639 | -3.0172813 |
| 9 | -43.4928203 | -3.0709657 |
| 10 | -43.5134883 | -3.1252170 |
| 11 | -43.5344229 | -3.1801668 |
| 12 | -43.5556717 | -3.2359515 |
| 13 | -43.5692806 | -3.2306914 |
| 14 | -43.5828795 | -3.2254356 |
| 15 | -43.5964718 | -3.2201840 |
| 16 | -43.6100535 | -3.2149367 |
| 17 | -43.6236353 | -3.2096902 |
| 18 | -43.6372104 | -3.2044464 |
| 19 | -43.6507888 | -3.1992025 |
| 20 | -43.6643672 | -3.1939612 |
| 21 | -43.6779490 | -3.1887173 |
| 22 | -43.6915340 | -3.1834734 |
| 23 | -43.7051296 | -3.1782270 |
| 24 | -43.6834817 | -3.1226395 |
| 25 | -43.6621609 | -3.0678819 |
| 26 | -43.6411171 | -3.0138175 |
| 27 | -43.6202955 | -2.9603158 |
| 28 | -43.5996513 | -2.9072554 |
| 29 | -43.5791330 | -2.8545144 |
| 30 | -43.5587006 | -2.8019741 |
| 31 | -43.5383024 | -2.7495225 |
| 32 | -43.5179005 | -2.6970419 |
| 33 | -43.4974475 | -2.6444187 |
| 34 | -43.4768991 | -2.5915377 |
| 35 | -43.4636655 | -2.5966116 |
| 36 | -43.4504356 | -2.6016822 |
| 37 | -43.4372120 | -2.6067510 |
| 38 | -43.4239922 | -2.6118173 |
| 39 | -43.4107690 | -2.6168836 |
| 40 | -43.3975492 | -2.6219491 |
| 41 | -43.3843260 | -2.6270145 |
| 42 | -43.3710995 | -2.6320825 |
| 43 | -43.3578625 | -2.6371514 |
| 44 | -43.3446188 | -2.6422236 |

**********
* PHOTO FRAME NUMBER 2 OF 4 *
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## FRAME 202

| | YEAR | MONTH | DAY | HOUR | MINUTE | SECOND |
|---|---|---|---|---|---|---|
| GMT | 67 | 2 | 22 | 8 | 53 | 14.709 |

| | | | | | |
|---|---|---|---|---|---|
| LONGITUDE OF NADIR POINT | = | -43.3501663 DEG | LATITUDE OF NADIR POINT | = | -2.8355624 DEG |
| LONG OF CAMERA AXIS INTERSECT | = | -43.3805423 DEG | LATI OF CAMERA AXIS INTERSECT | = | -2.9610671 DEG |
| SPACECRAFT RADIUS | = | 1791.0124512 KM | SPACECRAFT ALTITUDE | = | 52.9224548 KM |
| MEAN ALTITUDE RATE | = | 0.0342932 KM/SEC | TIME FROM PERIAPSIS | = | 67.1127882 SEC |
| HORIZONTAL VELOCITY | = | 1.9105346 KM/SEC | TRUE ANOMALY | = | 4.1054156 DEG |
| SCALE FACTOR (HIGH) | = | 0.0114939 M/KM | TILT DISTANCE (HIGH) | = | 45.1450315 MM |
| SCALE FACTOR (LOW) | = | 0.0015074 M/KM | TILT DISTANCE (LOW) | = | 5.9206599 MM |
| IMAGE MOTION COMPENSATION (V/H) | = | 0.0360036 RAD/SEC | SWING ANGLE | = | 352.5460625 DEG |
| EMISSION ANGLE | = | 4.3617806 DEG | INCIDENCE ANGLE | = | 69.6300020 DEG |
| PHASE ANGLE | = | 68.6954517 DEG | NORTH DEVIATION ANGLE | = | 338.9145012 DEG |
| TILT ANGLE | = | 4.2326438 DEG | RESOLUTION CONSTANT | = | 1.1516542 MTR |
| TILT AZIMUTH | = | 193.5919209 DEG | SUN AZIMUTH AT PRINCIPAL GND PT | = | 90.4170723 DEG |
| SUN ANGLE AT NADIR | = | 69.6006203 DEG | SUN ARC AT NADIR | = | 2111.3622131 KM |
| LONGITUDE DISTANCE TO TARGET | = | 0.5168338 DEG | LATITUDE DISTANCE TO TARGET | = | -0.4525624 DEG |
| LONGITUDE ARC LENGTH TO TARGET | = | 15.6783559 KM | LATITUDE ARC LENGTH TO TARGET | = | -13.7286580 KM |
| FORWARD OVERLAP RATIO | = | 8.4257717 PCT | SIDE OVERLAP RATIO | = | 0. PCT |
| TIME BETWEEN PHOTOS | = | 2.3000479 SEC | ALPHA | = | 0.8752343 DEG. |

| | X | Y | Z | MAGNITUDE (KM) |
|---|---|---|---|---|
| DIRECTION COSINES TO TARGET | -0.85606940 | 0.43013024 | 0.28658885 | 56.98918486 |
| CAMERA AXIS | -0.73878793 | 0.67356841 | -0.02231574 | 53.07162476 |
| C1 | -0.65828499 | 0.74199694 | 0.12689131 | 53.30139160 |
| C2 | -0.73823781 | 0.64338517 | -0.20263380 | 54.77133179 |
| C3 | -0.79459620 | 0.58262523 | -0.17077687 | 54.72167969 |
| C4 | -0.71464337 | 0.68123700 | 0.15874823 | 53.25439453 |

| | X | Y | Z | X DOT | Y DOT | Z DOT |
|---|---|---|---|---|---|---|
| STATE VECTOR (1950.0) | -213.6520519 | -1608.0029907 | -759.2132874 | 1.7834579 | 0.0479405 | -0.6843237 |

LONG -42.5816 DEG
LATI -2.5219 DEG

LONG -43.0627 DEG
LATI -3.8789 DEG

(1) * 43.66685 KM * (2)

LOW RESOLUTION

35.52597 KM 37.80061 KM

(4) * 43.36571 KM * (3)

LONG -43.6770 DEG
LATI -2.1054 DEG

LONG -44.2258 DEG
LATI -3.4257 DEG

LONG -43.1959 DEG
LATI -2.6987 DEG

LONG -43.4205 DEG
LATI -3.2884 DEG

(1) * 19.13685 KM * (2)

HIGH RESOLUTION

4.73056 KM 4.86096 KM

(4) * 19.11963 KM * (3)

LONG -43.3417 DEG
LATI -2.6430 DEG

LONG -43.5702 DEG
LATI -3.2305 DEG

LOW RESOLUTION 202

| INDEX | LONGITUDE | LATITUDE |
|---|---|---|
| 1 | -42.5815568 | -2.5218817 |
| 2 | -42.6267114 | -2.6477219 |
| 3 | -42.6731546 | -2.7690927 |
| 4 | -42.7124166 | -2.8874317 |
| 5 | -42.7539611 | -3.0040367 |
| 6 | -42.7952323 | -3.1201354 |
| 7 | -42.8366575 | -3.2369308 |
| 8 | -42.8786702 | -3.3556539 |
| 9 | -42.9217310 | -3.4776258 |
| 10 | -42.9663458 | -3.6043070 |
| 11 | -43.0131021 | -3.7373864 |
| 12 | -43.0626755 | -3.8788772 |
| 13 | -43.1752644 | -3.8344468 |
| 14 | -43.2838368 | -3.7917163 |
| 15 | -43.3893938 | -3.7502792 |
| 16 | -43.4928441 | -3.7097736 |
| 17 | -43.5950170 | -3.6698691 |
| 18 | -43.6967015 | -3.6302549 |
| 19 | -43.7986727 | -3.5906270 |
| 20 | -43.9017196 | -3.5506840 |
| 21 | -44.0066619 | -3.5101110 |
| 22 | -44.1143742 | -3.4685766 |
| 23 | -44.2258363 | -3.4257146 |
| 24 | -44.1681314 | -3.2885345 |
| 25 | -44.1139574 | -3.1594047 |
| 26 | -44.0624819 | -3.0363870 |
| 27 | -44.0130038 | -2.9178568 |
| 28 | -43.9649262 | -2.8024026 |
| 29 | -43.9177022 | -2.6887475 |
| 30 | -43.8708405 | -2.5756950 |
| 31 | -43.8238487 | -2.4620740 |
| 32 | -43.7762356 | -2.3466899 |
| 33 | -43.7274852 | -2.2282698 |
| 34 | -43.6770234 | -2.1054058 |
| 35 | -43.5723510 | -2.1456168 |
| 36 | -43.4711208 | -2.1844217 |
| 37 | -43.3724346 | -2.2221738 |
| 38 | -43.2754664 | -2.2591909 |
| 39 | -43.1794543 | -2.2957691 |
| 40 | -43.0836678 | -2.3321868 |
| 41 | -42.9873757 | -2.3687232 |
| 42 | -42.8898373 | -2.4056566 |
| 43 | -42.7902703 | -2.4432781 |
| 44 | -42.6878242 | -2.4819037 |



HIGH RESOLUTION 202

| INDEX | LONGITUDE | LATITUDE |
|---|---|---|
| 1 | -43.1959324 | -2.6987494 |
| 2 | -43.2161803 | -2.7518857 |
| 3 | -43.2363296 | -2.8047633 |
| 4 | -43.2564206 | -2.8574984 |
| 5 | -43.2765012 | -2.9102086 |
| 6 | -43.2966161 | -2.9630086 |
| 7 | -43.3168063 | -3.0160142 |
| 8 | -43.3371191 | -3.0693435 |
| 9 | -43.3575993 | -3.1231150 |
| 10 | -43.3782949 | -3.1774560 |
| 11 | -43.3992567 | -3.2324971 |
| 12 | -43.4205360 | -3.2883749 |
| 13 | -43.4341660 | -3.2830977 |
| 14 | -43.4477854 | -3.2778265 |
| 15 | -43.4613976 | -3.2725587 |
| 16 | -43.4750004 | -3.2672943 |
| 17 | -43.4885993 | -3.2620343 |
| 18 | -43.5021944 | -3.2567742 |
| 19 | -43.5157900 | -3.2515166 |
| 20 | -43.5293856 | -3.2462591 |
| 21 | -43.5429811 | -3.2410007 |
| 22 | -43.5565867 | -3.2357432 |
| 23 | -43.5701962 | -3.2304831 |
| 24 | -43.5485239 | -3.1748162 |
| 25 | -43.5271831 | -3.1199808 |
| 26 | -43.5061116 | -3.0658388 |
| 27 | -43.4852695 | -3.0122628 |
| 28 | -43.4646010 | -2.9591256 |
| 29 | -43.4440594 | -2.9063103 |
| 30 | -43.4236031 | -2.8536957 |
| 31 | -43.4031878 | -2.8011689 |
| 32 | -43.3827620 | -2.7486141 |
| 33 | -43.3622851 | -2.6959166 |
| 34 | -43.3417125 | -2.6429596 |
| 35 | -43.3284550 | -2.6480344 |
| 36 | -43.3152080 | -2.6531084 |
| 37 | -43.3019643 | -2.6581781 |
| 38 | -43.2887206 | -2.6632478 |
| 39 | -43.2754803 | -2.6683158 |
| 40 | -43.2622366 | -2.6733829 |
| 41 | -43.2489891 | -2.6784518 |
| 42 | -43.2357388 | -2.6835232 |
| 43 | -43.2224779 | -2.6885946 |
| 44 | -43.2092104 | -2.6936712 |

**********
* PHOTO FRAME NUMBER 3 OF 4 *
**********

## FRAME 203

| | YEAR | MONTH | DAY | HOUR | MINUTE | SECOND |
|---|---|---|---|---|---|---|
| GMT | 67 | 2 | 22 | 8 | 53 | 17.100 |

| | | | | | |
|---|---|---|---|---|---|
| LONGITUDE OF NADIR POINT | = | -43.2133751 DEG | LATITUDE OF NADIR POINT | = | -2.8878436 DEG |
| LONG OF CAMERA AXIS INTERSECT | = | -43.2396045 DEG | LATI OF CAMERA AXIS INTERSECT | = | -3.0151460 DEG |
| SPACECRAFT RADIUS | = | 1791.0961914 KM | SPACECRAFT ALTITUDE | = | 53.0061951 KM |
| MEAN ALTITUDE RATE | = | 0.0355140 KM/SEC | TIME FROM PERIAPSIS | = | 69.5079918 SEC |
| HORIZONTAL VELOCITY | = | 1.9104465 KM/SEC | TRUE ANOMALY | = | 4.2518036 DEG |
| SCALE FACTOR (HIGH) | = | 0.0114754 M/KM | TILT DISTANCE (HIGH) | = | 45.3709617 MM |
| SCALE FACTOR (LOW) | = | 0.0015059 M/KM | TILT DISTANCE (LOW) | = | 5.9502901 MM |
| IMAGE MOTION COMPENSATION (V/H) | = | 0.0359450 RAD/SEC | SWING ANGLE | = | 350.5851822 DEG |
| EMISSION ANGLE | = | 4.3837282 DEG | INCIDENCE ANGLE | = | 69.4885435 DEG |
| PHASE ANGLE | = | 68.6954517 DEG | NORTH DEVIATION ANGLE | = | 338.9209862 DEG |
| TILT ANGLE | = | 4.2537487 DEG | RESOLUTION CONSTANT | = | 1.1535092 MTR |
| TILT AZIMUTH | = | 191.6297512 DEG | SUN AZIMUTH AT PRINCIPAL GND PT | = | 90.3899231 DEG |
| SUN ANGLE AT NADIR | = | 69.4632587 DEG | SUN ARC AT NADIR | = | 2107.1952820 KM |
| LONGITUDE DISTANCE TO TARGET | = | 0.6536250 DEG | LATITUDE DISTANCE TO TARGET | = | -0.5048406 DEG |
| LONGITUDE ARC LENGTH TO TARGET | = | 19.8279717 KM | LATITUDE ARC LENGTH TO TARGET | = | -15.3145394 KM |
| FORWARD OVERLAP RATIO | = | 4.6774212 PCT | SIDE OVERLAP RATIO | = | 0. PCT |
| TIME BETWEEN PHOTOS | = | 2.3998260 SEC | ALPHA | = | 0.7319421 DEG. |

| | X | Y | Z | MAGNITUDE (KM) |
|---|---|---|---|---|
| DIRECTION COSINES TO TARGET | -0.87975756 | 0.36413019 | 0.30567276 | 58.78450203 |
| CAMERA AXIS | -0.73878396 | 0.67357276 | -0.02231565 | 54.15710449 |
| C1 | -0.65828063 | 0.74200080 | 0.12689140 | 53.39361572 |
| C2 | -0.73823403 | 0.64338955 | -0.20263372 | 54.86622620 |
| C3 | -0.79459276 | 0.58262993 | -0.17077679 | 54.80319214 |
| C4 | -0.71463937 | 0.68124119 | 0.15874832 | 54.33395386 |

| | X | Y | Z | X DOT | Y DOT | Z DOT |
|---|---|---|---|---|---|---|
| STATE VECTOR (1950.0) | -209.3729820 | -1607.8843332 | -760.8531189 | 1.7838924 | 0.0512333 | -0.6827667 |

LONG -42.4386 DEG
LATI -2.5749 DEG

LONG -42.9208 DEG
LATI -3.9354 DEG

* 43.77813 KM *
(1) (2)

LOW RESOLUTION

35.58488 KM 37.86345 KM

(4) (3)
* 43.39587 KM *

LONG -43.5364 DEG
LATI -2.1588 DEG

LONG -44.0854 DEG
LATI -3.4801 DEG

LONG -43.0547 DEG
LATI -2.7524 DEG

LONG -43.2796 DEG
LATI -3.3430 DEG

* 19.16998 KM *
(1) (2)

HIGH RESOLUTION

4.73831 KM 4.86895 KM

(4) (3)
* 19.14813 KM *

LONG -43.2008 DEG
LATI -2.6965 DEG

LONG -43.4295 DEG
LATI -3.2850 DEG

LOW RESOLUTION 203

| INDEX | LONGITUDE | LATITUDE |
|---|---|---|
| 1 | -42.4386454 | -2.5748720 |
| 2 | -42.4838986 | -2.7010333 |
| 3 | -42.5274377 | -2.8227139 |
| 4 | -42.5697885 | -2.9413560 |
| 5 | -42.6114254 | -3.0582615 |
| 6 | -42.6527853 | -3.1746608 |
| 7 | -42.6942959 | -3.2917575 |
| 8 | -42.7363973 | -3.4107915 |
| 9 | -42.7795506 | -3.5330826 |
| 10 | -42.8242607 | -3.6601003 |
| 11 | -42.8711123 | -3.7935340 |
| 12 | -42.9207916 | -3.9354064 |
| 13 | -43.0337186 | -3.8906883 |
| 14 | -43.1425748 | -3.8476973 |
| 15 | -43.2483745 | -3.8060221 |
| 16 | -43.3520226 | -3.7652997 |
| 17 | -43.4543557 | -3.7251936 |
| 18 | -43.5561666 | -3.6853916 |
| 19 | -43.6582336 | -3.6455895 |
| 20 | -43.7613387 | -3.6054843 |
| 21 | -43.8663015 | -3.5647619 |
| 22 | -43.9740038 | -3.5230866 |
| 23 | -44.0854106 | -3.4800940 |
| 24 | -44.0276890 | -3.3428166 |
| 25 | -43.9734983 | -3.2135929 |
| 26 | -43.9220052 | -3.0904855 |
| 27 | -43.8725104 | -2.9718682 |
| 28 | -43.8244123 | -2.8563270 |
| 29 | -43.7771711 | -2.7425847 |
| 30 | -43.7302890 | -2.6294461 |
| 31 | -43.6832767 | -2.5157371 |
| 32 | -43.6356430 | -2.4002625 |
| 33 | -43.5868649 | -2.2817484 |
| 34 | -43.5363832 | -2.1587871 |
| 35 | -43.4316626 | -2.1988983 |
| 36 | -43.3303571 | -2.2376177 |
| 37 | -43.2315588 | -2.2752999 |
| 38 | -43.1344538 | -2.3122598 |
| 39 | -43.0382743 | -2.3487919 |
| 40 | -42.9422898 | -2.3851771 |
| 41 | -42.8457689 | -2.4216896 |
| 42 | -42.7479677 | -2.4586102 |
| 43 | -42.6480966 | -2.4962317 |
| 44 | -42.5453091 | -2.5348693 |

HIGH RESOLUTION 203

| INDEX | LONGITUDE | LATITUDE |
|---|---|---|
| 1 | -43.0547047 | -2.7523664 |
| 2 | -43.0749798 | -2.8055966 |
| 3 | -43.0951595 | -2.8585673 |
| 4 | -43.1152816 | -2.9113971 |
| 5 | -43.1353893 | -2.9642013 |
| 6 | -43.1555319 | -3.0170951 |
| 7 | -43.1757526 | -3.0701956 |
| 8 | -43.1960964 | -3.1236188 |
| 9 | -43.2166038 | -3.1774867 |
| 10 | -43.2373300 | -3.2319259 |
| 11 | -43.2583227 | -3.2870652 |
| 12 | -43.2796292 | -3.3430412 |
| 13 | -43.2932830 | -3.3377478 |
| 14 | -43.3069263 | -3.3324586 |
| 15 | -43.3205595 | -3.3271746 |
| 16 | -43.3341823 | -3.3218940 |
| 17 | -43.3478050 | -3.3166169 |
| 18 | -43.3614178 | -3.3113414 |
| 19 | -43.3750334 | -3.3060676 |
| 20 | -43.3886461 | -3.3007947 |
| 21 | -43.4022655 | -3.2955210 |
| 22 | -43.4158850 | -3.2902463 |
| 23 | -43.4295111 | -3.2849717 |
| 24 | -43.4078150 | -3.2292195 |
| 25 | -43.3864470 | -3.1742988 |
| 26 | -43.3653517 | -3.1200747 |
| 27 | -43.3444819 | -3.0664151 |
| 28 | -43.3237901 | -3.0131968 |
| 29 | -43.3032246 | -2.9602987 |
| 30 | -43.2827439 | -2.9076038 |
| 31 | -43.2623014 | -2.8549960 |
| 32 | -43.2418518 | -2.8023608 |
| 33 | -43.2213507 | -2.7495822 |
| 34 | -43.2007508 | -2.6965433 |
| 35 | -43.1874766 | -2.7016215 |
| 36 | -43.1742053 | -2.7066955 |
| 37 | -43.1609378 | -2.7117695 |
| 38 | -43.1476703 | -2.7168400 |
| 39 | -43.1344061 | -2.7219114 |
| 40 | -43.1211386 | -2.7269829 |
| 41 | -43.1078672 | -2.7320543 |
| 42 | -43.0945892 | -2.7371274 |
| 43 | -43.0813046 | -2.7422039 |
| 44 | -43.0680099 | -2.7472839 |

**********
* PHOTO FRAME NUMBER 4 OF 4 *
**********

FRAME 204

| | YEAR | MONTH | DAY | HOUR | MINUTE | SECOND |
|---|---|---|---|---|---|---|
| GMT | 67 | 2 | 22 | 8 | 53 | 19.499 |

| | | | | | |
|---|---|---|---|---|---|
| LONGITUDE OF NADIR POINT | = | -43.0764694 | DEG | LATITUDE OF NADIR POINT | = -2.9401411 DEG |
| LONG OF CAMERA AXIS INTERSECT | = | -43.0985374 | DEG | LATI OF CAMERA AXIS INTERSECT | = -3.0692599 DEG |
| SPACECRAFT RADIUS | = | 1791.1829224 | KM | SPACECRAFT ALTITUDE | = 53.0929260 KM |
| MEAN ALTITUDE RATE | = | 0.0367354 | KM/SEC | TIME FROM PERIAPSIS | = 71.9051981 SEC |
| HORIZONTAL VELOCITY | = | 1.9103550 | KM/SEC | TRUE ANOMALY | = 4.3983004 DEG |
| SCALE FACTOR (HIGH) | = | 0.0114563 | M/KM | TILT DISTANCE (HIGH) | = 45.6497769 MM |
| SCALE FACTOR (LOW) | = | 0.0015025 | M/KM | TILT DISTANCE (LOW) | = 5.9868560 MM |
| IMAGE MOTION COMPENSATION (V/H) | = | 0.0358841 | RAD/SEC | SWING ANGLE | = 348.6448669 DEG |
| EMISSION ANGLE | = | 4.4107820 | DEG | INCIDENCE ANGLE | = 69.3469868 DEG |
| PHASE ANGLE | = | 68.6954527 | DEG | NORTH DEVIATION ANGLE | = 338.9277382 DEG |
| TILT ANGLE | = | 4.2797921 | DEG | RESOLUTION CONSTANT | = 1.1554369 MTR |
| TILT AZIMUTH | = | 189.6875858 | DEG | SUN AZIMUTH AT PRINCIPAL GNC PT | = 90.3624458 DEG |
| SUN ANGLE AT NADIR | = | 69.3258142 | DEG | SUN ARC AT NADIR | = 2103.0258484 KM |
| LONGITUDE DISTANCE TO TARGET | = | 0.7905307 | DEG | LATITUDE DISTANCE TO TARGET | = -0.5571411 DEG |
| LONGITUDE ARC LENGTH TO TARGET | = | 23.9810591 | KM | LATITUDE ARC LENGTH TO TARGET | = -16.9010952 KM |
| FORWARD OVERLAP RATIO | = | 4.7524071 | PCT | SIDE OVERLAP RATIO | = 0. PCT |
| TIME BETWEEN PHOTOS | = | 2.4001479 | SEC | ALPHA | = 0.5885102 DEG. |

| | X | Y | Z | MAGNITUDE (KM) |
|---|---|---|---|---|
| DIRECTION COSINES TO TARGET | -0.89774591 | 0.30048215 | 0.32212225 | 60.86536407 |
| CAMERA AXIS | -0.73878004 | 0.67357708 | -0.02231558 | 53.24594116 |
| C1 | -0.65827630 | 0.74200463 | 0.12689149 | 53.48922729 |
| C2 | -0.73823028 | 0.64339386 | -0.20263364 | 54.96463013 |
| C3 | -0.79458936 | 0.58263458 | -0.17077672 | 54.88816833 |
| C4 | -0.71463538 | 0.68124535 | 0.15874840 | 53.41687012 |

| | X | Y | Z | X DOT | Y DOT | Z DOT |
|---|---|---|---|---|---|---|
| STATE VECTOR (1950.0) | -205.0893421 | -1607.7570648 | -762.4905701 | 1.7843185 | 0.0545281 | -0.6812052 |

LONG -42.2955 DEG
LATI -2.6279 DEG

LONG -42.7787 DEG
LATI -3.9920 DEG

(1) • 43.89245 KM • (2)

LOW RESOLUTION

35.64639 KM 37.92913 KM

(4) • 43.42871 KM • (3)

LONG -43.3956 DEG
LATI -2.2121 DEG

LONG -43.9449 DEG
LATI -3.5345 DEG

LONG -42.9133 DEG
LATI -2.8060 DEG

LONG -43.1386 DEG
LATI -3.3978 DEG

(1) • 19.20436 KM • (2)

HIGH RESOLUTION

4.74642 KM 4.87726 KM

(4) • 19.17784 KM • (3)

LONG -43.0597 DEG
LATI -2.7501 DEG

LONG -43.2887 DEG
LATI -3.3395 DEG

LOW RESOLUTION 204

| INDEX | LONGITUDE | LATITUDE |
|---|---|---|
| 1 | -42.2955427 | -2.6278666 |
| 2 | -42.3408985 | -2.7543583 |
| 3 | -42.3845367 | -2.8763574 |
| 4 | -42.4269795 | -2.9953111 |
| 5 | -42.4687085 | -3.1125240 |
| 6 | -42.5101576 | -3.2292314 |
| 7 | -42.5517602 | -3.3466415 |
| 8 | -42.5939503 | -3.4659931 |
| 9 | -42.6371956 | -3.5886129 |
| 10 | -42.6820049 | -3.7159737 |
| 11 | -42.7289557 | -3.8497720 |
| 12 | -42.7787442 | -3.9920355 |
| 13 | -42.8920164 | -3.9470271 |
| 14 | -43.0011697 | -3.9037715 |
| 15 | -43.1072183 | -3.8618555 |
| 16 | -43.2110748 | -3.8209094 |
| 17 | -43.3135753 | -3.7805993 |
| 18 | -43.4155197 | -3.7406077 |
| 19 | -43.5176854 | -3.7006280 |
| 20 | -43.6208587 | -3.6603581 |
| 21 | -43.7258525 | -3.6194811 |
| 22 | -43.8335476 | -3.5776633 |
| 23 | -43.9449072 | -3.5345383 |
| 24 | -43.8871646 | -3.3971542 |
| 25 | -43.8329535 | -3.2678280 |
| 26 | -43.7814403 | -3.1446233 |
| 27 | -43.7319245 | -3.0259112 |
| 28 | -43.6838059 | -2.9102761 |
| 29 | -43.6365442 | -2.7964416 |
| 30 | -43.5896416 | -2.6832082 |
| 31 | -43.5426054 | -2.5694053 |
| 32 | -43.4949446 | -2.4538325 |
| 33 | -43.4461460 | -2.3352169 |
| 34 | -43.3956332 | -2.2121497 |
| 35 | -43.2908616 | -2.2521635 |
| 36 | -43.1894674 | -2.2908010 |
| 37 | -43.0905561 | -2.3284140 |
| 38 | -42.9933047 | -2.3653192 |
| 39 | -42.8969512 | -2.4018078 |
| 40 | -42.8007617 | -2.4381606 |
| 41 | -42.7040052 | -2.4746518 |
| 42 | -42.6059303 | -2.5115638 |
| 43 | -42.5057521 | -2.5491854 |
| 44 | -42.4026093 | -2.5878365 |

HIGH RESOLUTION 204

| INDEX | LONGITUDE | LATITUDE |
|---|---|---|
| 1 | -42.9133301 | -2.8060022 |
| 2 | -42.9336395 | -2.8593297 |
| 3 | -42.9538465 | -2.9123977 |
| 4 | -42.9739990 | -2.9653257 |
| 5 | -42.9941378 | -3.0182264 |
| 6 | -43.0143108 | -3.0712167 |
| 7 | -43.0345621 | -3.1244145 |
| 8 | -43.0549335 | -3.1779367 |
| 9 | -43.0754752 | -3.2319054 |
| 10 | -43.0962319 | -3.2864437 |
| 11 | -43.1172519 | -3.3416854 |
| 12 | -43.1385927 | -3.3977663 |
| 13 | -43.1522703 | -3.3924550 |
| 14 | -43.1659374 | -3.3871471 |
| 15 | -43.1795912 | -3.3818460 |
| 16 | -43.1932378 | -3.3765492 |
| 17 | -43.2068810 | -3.3712533 |
| 18 | -43.2205176 | -3.3659624 |
| 19 | -43.2341509 | -3.3606716 |
| 20 | -43.2477870 | -3.3553824 |
| 21 | -43.2614202 | -3.3500933 |
| 22 | -43.2750602 | -3.3448033 |
| 23 | -43.2887068 | -3.3395134 |
| 24 | -43.2669835 | -3.2836714 |
| 25 | -43.2455878 | -3.2286628 |
| 26 | -43.2244687 | -3.1743517 |
| 27 | -43.2035718 | -3.1206058 |
| 28 | -43.1828527 | -3.0673021 |
| 29 | -43.1622629 | -3.0143204 |
| 30 | -43.1417551 | -2.9615409 |
| 31 | -43.1212850 | -2.9088486 |
| 32 | -43.1008081 | -2.8561298 |
| 33 | -43.0802803 | -2.8032658 |
| 34 | -43.0596566 | -2.7501423 |
| 35 | -43.0463581 | -2.7552223 |
| 36 | -43.0330629 | -2.7602988 |
| 37 | -43.0197716 | -2.7653745 |
| 38 | -43.0064836 | -2.7704485 |
| 39 | -42.9931951 | -2.7755233 |
| 40 | -42.9799004 | -2.7805973 |
| 41 | -42.9666018 | -2.7856730 |
| 42 | -42.9533000 | -2.7907512 |
| 43 | -42.9399881 | -2.7958312 |
| 44 | -42.9266658 | -2.8009137 |

**********
* PHOTO FRAME NUMBER 1 OF 8 *
**********

FRAME 205

| | YEAR | MONTH | DAY | HOUR | MINUTE | SECOND |
|---|---|---|---|---|---|---|
| GMT | 67 | 2 | 22 | 12 | 21 | 42.299 |

| | | | | | |
|---|---|---|---|---|---|
| LONGITUDE OF NADIR POINT | = | -45.2050705 | DEG | LATITUDE OF NADIR POINT | = -2.8668950 DEG |
| LONG OF CAMERA AXIS INTERSECT | = | -44.8342795 | DEG | LATI OF CAMERA AXIS INTERSECT | = -1.9080884 DEG |
| SPACECRAFT RADIUS | = | 1791.6602020 | KM | SPACECRAFT ALTITUDE | = 53.5702057 KM |
| MEAN ALTITUDE RATE | = | 0.0344842 | KM/SEC | TIME FROM PERIAPSIS | = 67.5871124 SEC |
| HORIZONTAL VELOCITY | = | 1.9099982 | KM/SEC | TRUE ANOMALY | = 4.1318182 DEG |
| SCALE FACTOR (HIGH) | = | 0.0098031 | M/KM | TILT DISTANCE (HIGH) | = 353.1958504 MM |
| SCALE FACTOR (LOW) | = | 0.0012856 | M/KM | TILT DISTANCE (LOW) | = 46.3207674 MM |
| IMAGE MOTION COMPENSATION (V/H) | = | 0.0306967 | RAD/SEC | SWING ANGLE | = 180.4327259 DEG |
| EMISSION ANGLE | = | 31.0991383 | DEG | INCIDENCE ANGLE | = 69.3378353 DEG |
| PHASE ANGLE | = | 82.2816439 | DEG | NORTH DEVIATION ANGLE | = 336.1545944 DEG |
| TILT ANGLE | = | 30.0712528 | DEG | RESOLUTION CONSTANT | = 1.3502876 MTR |
| TILT AZIMUTH | = | 21.1335008 | DEG | SUN AZIMUTH AT PRINCIPAL GND PT | = 90.7970314 DEG |
| SUN ANGLE AT NADIR | = | 69.6978312 | DEG | SUN ARC AT NADIR | = 2114.3111267 KM |
| LONGITUDE DISTANCE TO TARGET | = | -1.3380704 | DEG | LATITUDE DISTANCE TO TARGET | = -0.4838950 DEG |
| LONGITUDE ARC LENGTH TO TARGET | = | -40.5908914 | KM | LATITUDE ARC LENGTH TO TARGET | = -14.6791462 KM |
| FORWARD OVERLAP RATIO | = | 0. | PCT | SIDE OVERLAP RATIO | = 0. PCT |
| TIME BETWEEN PHOTOS | = | 0. | SEC | ALPHA | = -15.6592363 DEG. |

| DIRECTION COSINES TO TARGET | X | Y | Z | MAGNITUDE (KM) |
|---|---|---|---|---|
| CAMERA AXIS | -0.12690254 | 0.95971728 | 0.25067609 | 69.18525505 |
| C1 | -0.46433314 | 0.72404874 | 0.51007451 | 62.22523499 |
| C2 | -0.32201593 | 0.71179366 | 0.62422395 | 71.07307434 |
| C3 | -0.53302857 | 0.77147490 | 0.34742916 | 57.15342712 |
| C4 | -0.59107060 | 0.71210182 | 0.37887536 | 57.13226318 |
| | -0.38005795 | 0.65242058 | 0.65567014 | 71.04003906 |

| STATE VECTOR (1950.0) | X | Y | Z | X DOT | Y DOT | Z DOT |
|---|---|---|---|---|---|---|
| | -212.0795822 | -1608.3633423 | -760.4182434 | 1.7833072 | 0.0494117 | -0.6831227 |

LONG -43.4777 DEG
LATI -1.0034 DEG

(1) * 64.92050 KM * (2)

LONG -44.5780 DEG
LATI -2.8395 DEG

LOW RESOLUTION

57.38649 KM 34.49553 KM

(4) * 64.61948 KM * (3)

LONG -45.2507 DEG
LATI -0.3432 DEG

LONG -45.6427 DEG
LATI -2.4371 DEG

LONG -44.5652 DEG
LATI -1.4917 DEG

(1) * 26.46339 KM * (2)

LONG -44.8934 DEG
LATI -2.3001 DEG

HIGH RESOLUTION

6.30889 KM 5.07352 KM

(4) * 26.44915 KM * (3)

LONG -44.7600 DEG
LATI -1.4187 DEG

LONG -45.0500 DEG
LATI -2.2410 DEG

LOW RESOLUTION 205

| INDEX | LONGITUDE | LATITUDE |
|---|---|---|
| 1 | -43.4777222 | -1.0033932 |
| 2 | -43.6509013 | -1.2895132 |
| 3 | -43.7955546 | -1.5293382 |
| 4 | -43.9196081 | -1.7356134 |
| 5 | -44.0283580 | -1.9168917 |
| 6 | -44.1254935 | -2.0791719 |
| 7 | -44.2137055 | -2.2268269 |
| 8 | -44.2949986 | -2.3631481 |
| 9 | -44.3709364 | -2.4906950 |
| 10 | -44.4427562 | -2.6115177 |
| 11 | -44.5114884 | -2.7273099 |
| 12 | -44.5780005 | -2.8395222 |
| 13 | -44.6808085 | -2.8008727 |
| 14 | -44.7800207 | -2.7635329 |
| 15 | -44.8765450 | -2.7271664 |
| 16 | -44.9711871 | -2.6914701 |
| 17 | -45.0647097 | -2.6561623 |
| 18 | -45.1578188 | -2.6209723 |
| 19 | -45.2512283 | -2.5856346 |
| 20 | -45.3456454 | -2.5498803 |
| 21 | -45.4418182 | -2.5134225 |
| 22 | -45.5405450 | -2.4759563 |
| 23 | -45.6427178 | -2.4371429 |
| 24 | -45.6181054 | -2.3094628 |
| 25 | -45.5927925 | -2.1776683 |
| 26 | -45.5664825 | -2.0401032 |
| 27 | -45.5388136 | -1.8948353 |
| 28 | -45.5093651 | -1.7395168 |
| 29 | -45.4776115 | -1.5712244 |
| 30 | -45.4428868 | -1.3861869 |
| 31 | -45.4043064 | -1.1793978 |
| 32 | -45.3606787 | -0.9439791 |
| 33 | -45.3103166 | -0.6701227 |
| 34 | -45.2507434 | -0.3432008 |
| 35 | -45.0813823 | -0.4103654 |
| 36 | -44.9178672 | -0.4743780 |
| 37 | -44.7586250 | -0.5359368 |
| 38 | -44.6022305 | -0.5956463 |
| 39 | -44.4473701 | -0.6540427 |
| 40 | -44.2927790 | -0.7116186 |
| 41 | -44.1371975 | -0.7688394 |
| 42 | -43.9793415 | -0.8261575 |
| 43 | -43.8178415 | -0.8840314 |
| 44 | -43.6512022 | -0.9429392 |

HIGH RESOLUTION 205

| INDEX | LONGITUDE | LATITUDE |
|---|---|---|
| 1 | -44.5652280 | -1.4916919 |
| 2 | -44.6023026 | -1.5829834 |
| 3 | -44.6373787 | -1.6693665 |
| 4 | -44.6706896 | -1.7514125 |
| 5 | -44.7024398 | -1.8296190 |
| 6 | -44.7328033 | -1.9044155 |
| 7 | -44.7619343 | -1.9761837 |
| 8 | -44.7899652 | -2.0452540 |
| 9 | -44.8170266 | -2.1119252 |
| 10 | -44.8432136 | -2.1764628 |
| 11 | -44.8686318 | -2.2391050 |
| 12 | -44.8933711 | -2.3000670 |
| 13 | -44.9076290 | -2.2947002 |
| 14 | -44.9218802 | -2.2893368 |
| 15 | -44.9361210 | -2.2839751 |
| 16 | -44.9503551 | -2.2786134 |
| 17 | -44.9645824 | -2.2732508 |
| 18 | -44.9788098 | -2.2678883 |
| 19 | -44.9930372 | -2.2625257 |
| 20 | -45.0072641 | -2.2571589 |
| 21 | -45.0214949 | -2.2517895 |
| 22 | -45.0357327 | -2.2464159 |
| 23 | -45.0499768 | -2.2410388 |
| 24 | -45.0280862 | -2.1790318 |
| 25 | -45.0055976 | -2.1153138 |
| 26 | -44.9824300 | -2.0496671 |
| 27 | -44.9585037 | -1.9818485 |
| 28 | -44.9337201 | -1.9115872 |
| 29 | -44.9079771 | -1.8385810 |
| 30 | -44.8811517 | -1.7624927 |
| 31 | -44.8531137 | -1.6829338 |
| 32 | -44.8237028 | -1.5994655 |
| 33 | -44.7927451 | -1.5115849 |
| 34 | -44.7600355 | -1.4187071 |
| 35 | -44.7423248 | -1.4253725 |
| 36 | -44.7246208 | -1.4320294 |
| 37 | -44.7069240 | -1.4386794 |
| 38 | -44.6892304 | -1.4453209 |
| 39 | -44.6715331 | -1.4519556 |
| 40 | -44.6538363 | -1.4585852 |
| 41 | -44.6361356 | -1.4652122 |
| 42 | -44.6184249 | -1.4718340 |
| 43 | -44.6007075 | -1.4784550 |
| 44 | -44.5829763 | -1.4850735 |

**********
* PHOTO FRAME NUMBER 2 OF 8 *
**********

## FRAME 206

| | YEAR | MONTH | DAY | HOUR | MINUTE | SECOND |
|---|---|---|---|---|---|---|
| GMT | 67 | 2 | 22 | 12 | 21 | 45.099 |

| | | | | | |
|---|---|---|---|---|---|
| LONGITUDE OF NADIR POINT | = | -45.0455627 | DEG | LATITUDE OF NADIR POINT | = | -2.9278126 | DEG |
| LONG OF CAMERA AXIS INTERSECT | = | -44.6692419 | DEG | LATI OF CAMERA AXIS INTERSECT | = | -1.9690581 | DEG |
| SPACECRAFT RADIUS | = | 1791.7587128 | KM | SPACECRAFT ALTITUDE | = | 53.6687164 | KM |
| MEAN ALTITUDE RATE | = | 0.0359064 | KM/SEC | TIME FROM PERIAPSIS | = | 70.3820238 | SEC |
| HORIZONTAL VELOCITY | = | 1.9098942 | KM/SEC | TRUE ANOMALY | = | 4.3025245 | DEG |
| SCALE FACTOR (HIGH) | = | 0.0097849 | M/KM | TILT DISTANCE (HIGH) | = | 353.2128220 | MM |
| SCALE FACTOR (LOW) | = | 0.0012833 | M/KM | TILT DISTANCE (LOW) | = | 46.3229928 | MM |
| IMAGE MOTION COMPENSATION (V/H) | = | 0.0306394 | RAD/SEC | SWING ANGLE | = | 180.7738476 | DEG |
| EMISSION ANGLE | = | 31.1022818 | DEG | INCIDENCE ANGLE | = | 69.1716795 | DEG |
| PHASE ANGLE | = | 82.2816429 | DEG | NORTH DEVIATION ANGLE | = | 336.1756973 | DEG |
| TILT ANGLE | = | 30.0724463 | DEG | RESOLUTION CONSTANT | = | 1.3528008 | MTR |
| TILT AZIMUTH | = | 21.4205995 | DEG | SUN AZIMUTH AT PRINCIPAL GND PT | = | 90.7691994 | DEG |
| SUN ANGLE AT NADIR | = | 69.5376701 | DEG | SUN ARC AT NADIR | = | 2109.4526062 | KM |
| LONGITUDE DISTANCE TO TARGET | = | -1.1785626 | DEG | LATITUDE DISTANCE TO TARGET | = | -0.5448126 | DEG |
| LONGITUDE ARC LENGTH TO TARGET | = | -35.7521610 | KM | LATITUDE ARC LENGTH TO TARGET | = | -16.5271049 | KM |
| FORWARD OVERLAP RATIO | = | 5.2061306 | PCT | SIDE OVERLAP RATIO | = | 0. | PCT |
| TIME BETWEEN PHOTOS | = | 2.8002262 | SEC | ALPHA | = | -15.8296137 | DEG. |

| | X | Y | Z | MAGNITUDE (KM) |
|---|---|---|---|---|
| DIRECTION COSINES TO TARGET | -0.18400707 | 0.93987221 | 0.28771798 | 66.90787983 |
| CAMERA AXIS | -0.46429815 | 0.72405189 | 0.51007459 | 62.34104919 |
| C1 | -0.32201101 | 0.71179581 | 0.62422402 | 71.21911621 |
| C2 | -0.53302326 | 0.77147853 | 0.34742925 | 57.26791382 |
| C3 | -0.59106569 | 0.71210586 | 0.37887545 | 57.23001099 |
| C4 | -0.38005345 | 0.65242313 | 0.65567021 | 71.15992737 |

| | X | Y | Z | X DOT | Y DOT | Z DOT |
|---|---|---|---|---|---|---|
| STATE VECTOR (1950.0) | -207.0873795 | -1608.2196655 | -762.3277664 | 1.7838087 | 0.0532502 | -0.6813052 |

LONG -43.3071 DEG
LATI -1.0592 DEG

LONG -44.4117 DEG
LATI -2.9022 DEG

(1) • 65.16466 KM • (2)

LOW RESOLUTION

57.49950 KM 34.56033 KM

(4) • 64.62526 KM • (3)

LONG -45.0865 DEG
LATI -0.4055 DEG

LONG -45.4787 DEG
LATI -2.4996 DEG

LONG -44.3996 DEG
LATI -1.5516 DEG

LONG -44.7284 DEG
LATI -2.3617 DEG

(1) • 26.51883 KM • (2)

HIGH RESOLUTION

6.32089 KM 5.08304 KM

(4) • 26.49331 KM • (3)

LONG -44.5950 DEG
LATI -1.4790 DEG

LONG -44.8853 DEG
LATI -2.3027 DEG

LOW RESOLUTION 206

| INDEX | LONGITUDE | LATITUDE |
|---|---|---|
| 1 | -43.3070936 | -1.0592180 |
| 2 | -43.4811029 | -1.3466085 |
| 3 | -43.6264048 | -1.5874315 |
| 4 | -43.7509842 | -1.7945186 |
| 5 | -43.8601680 | -1.9764774 |
| 6 | -43.9576793 | -2.1393424 |
| 7 | -44.0462155 | -2.2875097 |
| 8 | -44.1277957 | -2.4242885 |
| 9 | -44.2039895 | -2.5522512 |
| 10 | -44.2760515 | -2.6734555 |
| 11 | -44.3450022 | -2.7896037 |
| 12 | -44.4117198 | -2.9021516 |
| 13 | -44.5149374 | -2.8634202 |
| 14 | -44.6145082 | -2.8260138 |
| 15 | -44.7113428 | -2.7895969 |
| 16 | -44.8062553 | -2.7538639 |
| 17 | -44.9000096 | -2.7185305 |
| 18 | -44.9933205 | -2.6833294 |
| 19 | -45.0868974 | -2.6479926 |
| 20 | -45.1814480 | -2.6122485 |
| 21 | -45.2777228 | -2.5758171 |
| 22 | -45.3765216 | -2.5383911 |
| 23 | -45.4787250 | -2.4996340 |
| 24 | -45.4540887 | -2.3718617 |
| 25 | -45.4287519 | -2.2399827 |
| 26 | -45.4024181 | -2.1023441 |
| 27 | -45.3747287 | -1.9570080 |
| 28 | -45.3452597 | -1.8016340 |
| 29 | -45.3134856 | -1.6332997 |
| 30 | -45.2787371 | -1.4482349 |
| 31 | -45.2401361 | -1.2414441 |
| 32 | -45.1964879 | -1.0060578 |
| 33 | -45.1461048 | -0.7322876 |
| 34 | -45.0865149 | -0.4055391 |
| 35 | -44.9170752 | -0.4718875 |
| 36 | -44.7533793 | -0.5351556 |
| 37 | -44.5938568 | -0.5960288 |
| 38 | -44.4370937 | -0.6551014 |
| 39 | -44.2817717 | -0.7129018 |
| 40 | -44.1266274 | -0.7699143 |
| 41 | -43.9703937 | -0.8265997 |
| 42 | -43.8117800 | -0.8834073 |
| 43 | -43.6494055 | -0.9407911 |
| 44 | -43.4817486 | -0.9992251 |

HIGH RESOLUTION 206

| INDEX | LONGITUDE | LATITUDE |
|---|---|---|
| 1 | -44.3995891 | -1.5515884 |
| 2 | -44.4367385 | -1.6430797 |
| 3 | -44.4718833 | -1.7296498 |
| 4 | -44.5052590 | -1.8118733 |
| 5 | -44.5370708 | -1.8902463 |
| 6 | -44.5674925 | -1.9652033 |
| 7 | -44.5966778 | -2.0371227 |
| 8 | -44.6247635 | -2.1063398 |
| 9 | -44.6518693 | -2.1731527 |
| 10 | -44.6781106 | -2.2378252 |
| 11 | -44.7035737 | -2.3005981 |
| 12 | -44.7283535 | -2.3616873 |
| 13 | -44.7426524 | -2.3563281 |
| 14 | -44.7569413 | -2.3509707 |
| 15 | -44.7712164 | -2.3456150 |
| 16 | -44.7854881 | -2.3402618 |
| 17 | -44.7997527 | -2.3349078 |
| 18 | -44.8140144 | -2.3295529 |
| 19 | -44.8282723 | -2.3241981 |
| 20 | -44.8425336 | -2.3188398 |
| 21 | -44.8567953 | -2.3134789 |
| 22 | -44.8710637 | -2.3081155 |
| 23 | -44.8853388 | -2.3027470 |
| 24 | -44.8634171 | -2.2406324 |
| 25 | -44.8408947 | -2.1768060 |
| 26 | -44.8176956 | -2.1110466 |
| 27 | -44.7937355 | -2.0431110 |
| 28 | -44.7689180 | -1.9727294 |
| 29 | -44.7431374 | -1.8996002 |
| 30 | -44.7162743 | -1.8233813 |
| 31 | -44.6881919 | -1.7436875 |
| 32 | -44.6587367 | -1.6600800 |
| 33 | -44.6277347 | -1.5720500 |
| 34 | -44.5949769 | -1.4790151 |
| 35 | -44.5772219 | -1.4856413 |
| 36 | -44.5594702 | -1.4922597 |
| 37 | -44.5417218 | -1.4988696 |
| 38 | -44.5239773 | -1.5054736 |
| 39 | -44.5062323 | -1.5120707 |
| 40 | -44.4884806 | -1.5186635 |
| 41 | -44.4707255 | -1.5252529 |
| 42 | -44.4529605 | -1.5318389 |
| 43 | -44.4351850 | -1.5384224 |
| 44 | -44.4173956 | -1.5450058 |

**********
* PHOTO FRAME NUMBER 3 OF 8 *
**********

FRAME 207

| | YEAR | MONTH | DAY | HOUR | MINUTE | SECOND |
|---|---|---|---|---|---|---|
| GMT | 67 | 2 | 22 | 12 | 21 | 47.899 |

| | | | | | |
|---|---|---|---|---|---|
| LONGITUDE OF NADIR POINT | = | -44.8859444 | DEG | LATITUDE OF NADIR POINT | = -2.9887447 DEG |
| LONG OF CAMERA AXIS INTERSECT | = | -44.5040431 | DEG | LATI OF CAMERA AXIS INTERSECT | = -2.0299629 DEG |
| SPACECRAFT RADIUS | = | 1791.8612671 | KM | SPACECRAFT ALTITUDE | = 53.7712708 KM |
| MEAN ALTITUDE RATE | = | 0.0373291 | KM/SEC | TIME FROM PERIAPSIS | = 73.1788712 SEC |
| HORIZONTAL VELOCITY | = | 1.9097859 | KM/SEC | TRUE ANOMALY | = 4.4733302 DEG |
| SCALE FACTOR (HIGH) | = | 0.0097659 | M/KM | TILT DISTANCE (HIGH) | = 353.2422676 MM |
| SCALE FACTOR (LOW) | = | 0.0012808 | M/KM | TILT DISTANCE (LOW) | = 46.3268547 MM |
| IMAGE MOTION COMPENSATION (V/H) | = | 0.0305794 | RAD/SEC | SWING ANGLE | = 181.1150951 DEG |
| EMISSION ANGLE | = | 31.1064196 | DEG | INCIDENCE ANGLE | = 69.0053968 DEG |
| PHASE ANGLE | = | 82.2816439 | DEG | NORTH DEVIATION ANGLE | = 336.1971550 DEG |
| TILT ANGLE | = | 30.0745177 | DEG | RESOLUTION CONSTANT | = 1.3554288 MTR |
| TILT AZIMUTH | = | 21.7076619 | DEG | SUN AZIMUTH AT PRINCIPAL GND PT | = 90.7409859 DEG |
| SUN ANGLE AT NADIR | = | 69.3774405 | DEG | SUN ARC AT NADIR | = 2104.5919495 KM |
| LONGITUDE DISTANCE TO TARGET | = | -1.0189443 | DEG | LATITUDE DISTANCE TO TARGET | = -0.6057447 DEG |
| LONGITUDE ARC LENGTH TO TARGET | = | -30.9100749 | KM | LATITUDE ARC LENGTH TO TARGET | = -18.3755050 KM |
| FORWARD OVERLAP RATIO | = | 5.3232884 | PCT | SIDE OVERLAP RATIO | = 0. PCT |
| TIME BETWEEN PHOTOS | = | 2.8002262 | SEC | ALPHA | = -15.9998882 DEG. |

| | X | Y | Z | MAGNITUDE (KM) |
|---|---|---|---|---|
| DIRECTION COSINES TO TARGET | -0.24373183 | 0.91354300 | 0.32562857 | 64.97848606 |
| CAMERA AXIS | -0.46429311 | 0.72405504 | 0.51007470 | 62.46215820 |
| C1 | -0.32200605 | 0.71179797 | 0.62422413 | 71.37130737 |
| C2 | -0.53301790 | 0.77148219 | 0.34742936 | 57.38728333 |
| C3 | -0.59106073 | 0.71210992 | 0.37887555 | 57.33255005 |
| C4 | -0.38304889 | 0.65242569 | 0.65567030 | 71.28584290 |

| | X | Y | Z | X DOT | Y DOT | Z DOT |
|---|---|---|---|---|---|---|
| STATE VECTOR (1950.0) | -202.0902519 | -1608.0651245 | -764.2335434 | 1.7842985 | 0.0570904 | -0.6794822 |

LONG -43.1361 DEG
LATI -1.1149 DEG

(1) * 65.41565 KM * (2)

LONG -44.2452 DEG
LATI -2.9648 DEG

LOW RESOLUTION

57.61956 KM 34.62846 KM

(4) * 64.63659 KM * (3)

LONG -44.9222 DEG
LATI -0.4677 DEG

LONG -45.3146 DEG
LATI -2.5621 DEG

LONG -44.2338 DEG
LATI -1.6114 DEG

(1) * 26.57658 KM * (2)

LONG -44.5632 DEG
LATI -2.4233 DEG

HIGH RESOLUTION

6.33353 KM 5.09303 KM

(4) * 26.53973 KM * (3)

LONG -44.4298 DEG
LATI -1.5392 DEG

LONG -44.7206 DEG
LATI -2.3644 DEG

LOW RESOLUTION 207

| INDEX | LONGITUDE | LATITUDE |
|---|---|---|
| 1 | -43.1361475 | -1.1148687 |
| 2 | -43.3110108 | -1.4035637 |
| 3 | -43.4569788 | -1.6454096 |
| 4 | -43.5820975 | -1.8533308 |
| 5 | -43.6917324 | -2.0359897 |
| 6 | -43.7896228 | -2.1994575 |
| 7 | -43.8784938 | -2.3481515 |
| 8 | -43.9603705 | -2.4854025 |
| 9 | -44.0368309 | -2.6137913 |
| 10 | -44.1091356 | -2.7353882 |
| 11 | -44.1783118 | -2.8519045 |
| 12 | -44.2452440 | -2.9647981 |
| 13 | -44.3488855 | -2.9259804 |
| 14 | -44.4488211 | -2.8885057 |
| 15 | -44.5459771 | -2.8520351 |
| 16 | -44.6411695 | -2.8162620 |
| 17 | -44.7351665 | -2.7809021 |
| 18 | -44.8286858 | -2.7456856 |
| 19 | -44.9224367 | -2.7103454 |
| 20 | -45.0171337 | -2.6746124 |
| 21 | -45.1135216 | -2.6382023 |
| 22 | -45.2123990 | -2.6008139 |
| 23 | -45.3146434 | -2.5621081 |
| 24 | -45.2899795 | -2.4342350 |
| 25 | -45.2646222 | -2.3022621 |
| 26 | -45.2382646 | -2.1645356 |
| 27 | -45.2105513 | -2.0191208 |
| 28 | -45.1810584 | -1.8636794 |
| 29 | -45.1492572 | -1.6952854 |
| 30 | -45.1144881 | -1.5101796 |
| 31 | -45.0758634 | -1.3033683 |
| 32 | -45.0321875 | -1.0679940 |
| 33 | -44.9817877 | -0.7942852 |
| 34 | -44.9221773 | -0.4676793 |
| 35 | -44.7526417 | -0.5332175 |
| 36 | -44.5887446 | -0.5957479 |
| 37 | -44.4289284 | -0.6559406 |
| 38 | -44.2717795 | -0.7143797 |
| 39 | -44.1159825 | -0.7715860 |
| 40 | -43.9602680 | -0.8280375 |
| 41 | -43.8033686 | -0.8841893 |
| 42 | -43.6439757 | -0.9404880 |
| 43 | -43.4807000 | -0.9973792 |
| 44 | -43.3120079 | -1.0553368 |

HIGH RESOLUTION 207

| INDEX | LONGITUDE | LATITUDE |
|---|---|---|
| 1 | -44.2337661 | -1.6113842 |
| 2 | -44.2709937 | -1.7030837 |
| 3 | -44.3062105 | -1.7898485 |
| 4 | -44.3396544 | -1.8722556 |
| 5 | -44.3715310 | -1.9508053 |
| 6 | -44.4020104 | -2.0259271 |
| 7 | -44.4312506 | -2.0980053 |
| 8 | -44.4593945 | -2.1673752 |
| 9 | -44.4865546 | -2.2343341 |
| 10 | -44.5128407 | -2.2991475 |
| 11 | -44.5383549 | -2.3620569 |
| 12 | -44.5631824 | -2.4232785 |
| 13 | -44.5775223 | -2.4179245 |
| 14 | -44.5918455 | -2.4125747 |
| 15 | -44.6061616 | -2.4072267 |
| 16 | -44.6204672 | -2.4018795 |
| 17 | -44.6347699 | -2.3965340 |
| 18 | -44.6490655 | -2.3911869 |
| 19 | -44.6633611 | -2.3858388 |
| 20 | -44.6776567 | -2.3804891 |
| 21 | -44.6919522 | -2.3751368 |
| 22 | -44.7062511 | -2.3697819 |
| 23 | -44.7205567 | -2.3644219 |
| 24 | -44.6986012 | -2.3021955 |
| 25 | -44.6760478 | -2.2382529 |
| 26 | -44.6528149 | -2.1723758 |
| 27 | -44.6288171 | -2.1043181 |
| 28 | -44.6039619 | -2.0338117 |
| 29 | -44.5781407 | -1.9605520 |
| 30 | -44.5512400 | -1.8841964 |
| 31 | -44.5231133 | -1.8043618 |
| 32 | -44.4936137 | -1.7206040 |
| 33 | -44.4625635 | -1.6324186 |
| 34 | -44.4297581 | -1.5392198 |
| 35 | -44.4119520 | -1.5458067 |
| 36 | -44.3941488 | -1.5523859 |
| 37 | -44.3763528 | -1.5589574 |
| 38 | -44.3585534 | -1.5655229 |
| 39 | -44.3407540 | -1.5720833 |
| 40 | -44.3229513 | -1.5786385 |
| 41 | -44.3051381 | -1.5851912 |
| 42 | -44.2873182 | -1.5917405 |
| 43 | -44.2694845 | -1.5982881 |
| 44 | -44.2516336 | -1.6048366 |

**********
* PHOTO FRAME NUMBER 4 OF 8 *
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FRAME 208

| | YEAR | MONTH | DAY | HOUR | MINUTE | SECOND |
|---|---|---|---|---|---|---|
| GMT | 67 | 2 | 22 | 12 | 21 | 51.699 |

| | | | | | |
|---|---|---|---|---|---|
| LONGITUDE OF NADIR POINT | = | -44.6694450 | DEG | LATITUDE OF NADIR POINT | = -3.0713362 DEG |
| LONG OF CAMERA AXIS INTERSECT | = | -44.2799006 | DEG | LATI OF CAMERA AXIS INTERSECT | = -2.1123990 DEG |
| SPACECRAFT RADIUS | = | 1792.0067444 | KM | SPACECRAFT ALTITUDE | = 53.9167480 KM |
| MEAN ALTITUDE RATE | = | 0.0392579 | KM/SEC | TIME FROM PERIAPSIS | = 76.9721279 SEC |
| HORIZONTAL VELOCITY | = | 1.9096325 | KM/SEC | TRUE ANOMALY | = 4.7049537 DEG |
| SCALE FACTOR (HIGH) | = | 0.0097390 | M/KM | TILT DISTANCE (HIGH) | = 353.3022537 MM |
| SCALE FACTOR (LOW) | = | 0.0012772 | M/KM | TILT DISTANCE (LOW) | = 46.3347220 MM |
| IMAGE MOTION COMPENSATION (V/H) | = | 0.0304940 | RAD/SEC | SWING ANGLE | = 181.5778179 DEG |
| EMISSION ANGLE | = | 31.1136217 | DEG | INCIDENCE ANGLE | = 68.7798471 DEG |
| PHASE ANGLE | = | 82.2816439 | DEG | NORTH DEVIATION ANGLE | = 336.2268028 DEG |
| TILT ANGLE | = | 30.0787370 | DEG | RESOLUTION CONSTANT | = 1.3591757 MTR |
| TILT AZIMUTH | = | 22.0965943 | DEG | SUN AZIMUTH AT PRINCIPAL GND PT | = 90.7021370 DEG |
| SUN ANGLE AT NADIR | = | 69.1601830 | DEG | SUN ARC AT NADIR | = 2098.0013733 KM |
| LONGITUDE DISTANCE TO TARGET | = | -0.8024449 | DEG | LATITUDE DISTANCE TO TARGET | = -0.6883363 DEG |
| LONGITUDE ARC LENGTH TO TARGET | = | -24.3424826 | KM | LATITUDE ARC LENGTH TO TARGET | = -20.8809509 KM |
| FORWARD OVERLAP RATIO | = | -28.0614667 | PCT | SIDE OVERLAP RATIO | = 0. PCT |
| TIME BETWEEN PHOTOS | = | 3.7999392 | SEC | ALPHA | = -16.2304935 DEG. |

| | X | Y | Z | MAGNITUDE (KM) |
|---|---|---|---|---|
| DIRECTION COSINES TO TARGET | -0.32720070 | 0.86646706 | 0.37706038 | 62.97669315 |
| CAMERA AXIS | -0.46428631 | 0.72405931 | 0.51007482 | 62.63482666 |
| C1 | -0.32199937 | 0.71180089 | 0.62422424 | 71.58750916 |
| C2 | -0.53301065 | 0.77148712 | 0.34742949 | 57.55693054 |
| C3 | -0.59105406 | 0.71211538 | 0.37887568 | 57.47924805 |
| C4 | -0.38004277 | 0.65242916 | 0.65567042 | 71.46621704 |

| | X | Y | Z | X DOT | Y DOT | Z DOT |
|---|---|---|---|---|---|---|
| STATE VECTOR (1950.0) | -195.3104763 | -1607.8383484 | -766.8101883 | 1.7849437 | 0.0622972 | -0.6770028 |

LONG -42.9040 DEG
LATI -1.1900 DEG

LONG -44.0193 DEG
LATI -3.0497 DEG

* 65.76688 KM *
(1) (2)

LOW RESOLUTION

57.79368 KM 34.72620 KM

(4) (3)
* 64.66092 KM *

LONG -44.6993 DEG
LATI -0.5516 DEG

LONG -45.0921 DEG
LATI -2.6467 DEG

LONG -44.0087 DEG
LATI -1.6923 DEG

LONG -44.3391 DEG
LATI -2.5067 DEG

* 26.65858 KM *
(1) (2)

HIGH RESOLUTION

6.35172 KM 5.10736 KM

(4) (3)
* 26.60630 KM *

LONG -44.2056 DEG
LATI -1.6206 DEG

LONG -44.4970 DEG
LATI -2.4479 DEG

LOW RESOLUTION 208

| INDEX | LONGITUDE | LATITUDE |
|---|---|---|
| 1 | -42.9039693 | -1.1899999 |
| 2 | -43.0800276 | -1.4805160 |
| 3 | -43.2269244 | -1.7237937 |
| 4 | -43.3527946 | -1.9328829 |
| 5 | -43.4630542 | -2.1165202 |
| 6 | -43.5614839 | -2.2808298 |
| 7 | -43.6508193 | -2.4302632 |
| 8 | -43.7331095 | -2.5681741 |
| 9 | -43.8099461 | -2.6971622 |
| 10 | -43.8825917 | -2.8193108 |
| 11 | -43.9520855 | -2.9363418 |
| 12 | -44.0193152 | -3.0497204 |
| 13 | -44.1235437 | -3.0107815 |
| 14 | -44.2239985 | -2.9732086 |
| 15 | -44.3216057 | -2.9366611 |
| 16 | -44.4171939 | -2.9008291 |
| 17 | -44.5115361 | -2.8654282 |
| 18 | -44.6053519 | -2.8301879 |
| 19 | -44.6993561 | -2.7948391 |
| 20 | -44.7942615 | -2.7591138 |
| 21 | -44.8908162 | -2.7227311 |
| 22 | -44.9898133 | -2.6853870 |
| 23 | -45.0921330 | -2.6467478 |
| 24 | -45.0674314 | -2.5187185 |
| 25 | -45.0420370 | -2.3865995 |
| 26 | -45.0156450 | -2.2487373 |
| 27 | -44.9878974 | -2.1031971 |
| 28 | -44.9583669 | -1.9476395 |
| 29 | -44.9265351 | -1.7791447 |
| 30 | -44.8917284 | -1.5939561 |
| 31 | -44.8530660 | -1.3870893 |
| 32 | -44.8093596 | -1.1516979 |
| 33 | -44.7589221 | -0.8780328 |
| 34 | -44.6992807 | -0.5515711 |
| 35 | -44.5295882 | -0.6160259 |
| 36 | -44.3653975 | -0.6775633 |
| 37 | -44.2051578 | -0.7368399 |
| 38 | -44.0474625 | -0.7944253 |
| 39 | -43.8909926 | -0.8508307 |
| 40 | -43.7344790 | -0.9065257 |
| 41 | -43.5766435 | -0.9619561 |
| 42 | -43.4161716 | -1.0175616 |
| 43 | -43.2516427 | -1.0737877 |
| 44 | -43.0815029 | -1.1310972 |

HIGH RESOLUTION 208

| INDEX | LONGITUDE | LATITUDE |
|---|---|---|
| 1 | -44.0087419 | -1.6922536 |
| 2 | -44.0460758 | -1.7842486 |
| 3 | -44.0813980 | -1.8712908 |
| 4 | -44.1149378 | -1.9539591 |
| 5 | -44.1469030 | -2.0327564 |
| 6 | -44.1774683 | -2.1081156 |
| 7 | -44.2067933 | -2.1804192 |
| 8 | -44.2350125 | -2.2500051 |
| 9 | -44.2622476 | -2.3171706 |
| 10 | -44.2886057 | -2.3821855 |
| 11 | -44.3141880 | -2.4452879 |
| 12 | -44.3390841 | -2.5066982 |
| 13 | -44.3534751 | -2.5013527 |
| 14 | -44.3678560 | -2.4960106 |
| 15 | -44.3822269 | -2.4906703 |
| 16 | -44.3965840 | -2.4853325 |
| 17 | -44.4109378 | -2.4799955 |
| 18 | -44.4252844 | -2.4746594 |
| 19 | -44.4396276 | -2.4693217 |
| 20 | -44.4539714 | -2.4639822 |
| 21 | -44.4683146 | -2.4586410 |
| 22 | -44.4826612 | -2.4532963 |
| 23 | -44.4970117 | -2.4479483 |
| 24 | -44.4750118 | -2.3855605 |
| 25 | -44.4524069 | -2.3214540 |
| 26 | -44.4291229 | -2.2554078 |
| 27 | -44.4050775 | -2.1871759 |
| 28 | -44.3801675 | -2.1164869 |
| 29 | -44.3542914 | -2.0430402 |
| 30 | -44.3273292 | -1.9664908 |
| 31 | -44.2991409 | -1.8864521 |
| 32 | -44.2695799 | -1.8024818 |
| 33 | -44.2384582 | -1.7140727 |
| 34 | -44.2055779 | -1.6206374 |
| 35 | -44.1877031 | -1.6271722 |
| 36 | -44.1698318 | -1.6336984 |
| 37 | -44.1519642 | -1.6402187 |
| 38 | -44.1340928 | -1.6467338 |
| 39 | -44.1162186 | -1.6532438 |
| 40 | -44.0983367 | -1.6597496 |
| 41 | -44.0804453 | -1.6662519 |
| 42 | -44.0625434 | -1.6727534 |
| 43 | -44.0446277 | -1.6792541 |
| 44 | -44.0266953 | -1.6857530 |

**********
* PHOTO FRAME NUMBER 5 OF 8 *
**********

## FRAME 209

| | YEAR | MONTH | DAY | HOUR | MINUTE | SECOND |
|---|---|---|---|---|---|---|
| GMT | 67 | 2 | 22 | 12 | 21 | 53.599 |

| | | | | | |
|---|---|---|---|---|---|
| LONGITUDE OF NADIR POINT | = | -44.5611687 | DEG | LATITUDE OF NADIR POINT | = -3.1126222 DEG |
| LONG OF CAMERA AXIS INTERSECT | = | -44.1677623 | DEG | LATI OF CAMERA AXIS INTERSECT | = -2.1535535 DEG |
| SPACECRAFT RADIUS | = | 1792.0822601 | KM | SPACECRAFT ALTITUDE | = 53.9922638 KM |
| MEAN ALTITUDE RATE | = | 0.0402223 | KM/SEC | TIME FROM PERIAPSIS | = 78.8693371 SEC |
| HORIZONTAL VELOCITY | = | 1.9095527 | KM/SEC | TRUE ANOMALY | = 4.8207878 DEG |
| SCALE FACTOR (HIGH) | = | 0.0097250 | M/KM | TILT DISTANCE (HIGH) | = 353.3409157 MM |
| SCALE FACTOR (LOW) | = | 0.0012754 | M/KM | TILT DISTANCE (LOW) | = 46.3397923 MM |
| IMAGE MOTION COMPENSATION (V/H) | = | 0.0304496 | RAD/SEC | SWING ANGLE | = 181.8091660 DEG |
| EMISSION ANGLE | = | 31.1179149 | DEG | INCIDENCE ANGLE | = 68.6670313 DEG |
| PHASE ANGLE | = | 82.2816439 | DEG | NORTH DEVIATION ANGLE | = 336.2418633 DEG |
| TILT ANGLE | = | 30.0814562 | DEG | RESOLUTION CONSTANT | = 1.3611286 MTR |
| TILT AZIMUTH | = | 22.2909231 | DEG | SUN AZIMUTH AT PRINCIPAL GND PT | = 90.6824560 DEG |
| SUN ANGLE AT NADIR | = | 69.0515537 | DEG | SUN ARC AT NADIR | = 2094.7060547 KM |
| LONGITUDE DISTANCE TO TARGET | = | -0.6941686 | DEG | LATITUDE DISTANCE TO TARGET | = -0.7296222 DEG |
| LONGITUDE ARC LENGTH TO TARGET | = | -21.0578766 | KM | LATITUDE ARC LENGTH TO TARGET | = -22.1333759 KM |
| FORWARD OVERLAP RATIO | = | 36.0392628 | PCT | SIDE OVERLAP RATIO | = 0. PCT |
| TIME BETWEEN PHOTOS | = | 1.8996477 | SEC | ALPHA | = -16.3456833 DEG. |

| DIRECTION COSINES TO TARGET | X | Y | Z | MAGNITUDE (KM) |
|---|---|---|---|---|
| CAMERA AXIS | -0.36917797 | 0.83783340 | 0.40217262 | 62.26060724 |
| C1 | -0.46428296 | 0.72406143 | 0.51007488 | 62.72482300 |
| C2 | -0.32199607 | 0.71180233 | 0.62422430 | 71.69985962 |
| C3 | -0.53300708 | 0.77148956 | 0.34742956 | 57.64512634 |
| C4 | -0.59105075 | 0.71211810 | 0.37887573 | 57.55590820 |
| | -0.38003974 | 0.65243086 | 0.65567046 | 71.56056213 |

| | X | Y | Z | X DOT | Y DOT | Z DOT |
|---|---|---|---|---|---|---|
| STATE VECTOR (1950.0) | -191.9187679 | -1607.7175140 | -768.0953217 | 1.7852581 | 0.0649006 | -0.6757598 |

LONG -42.7877 DEG
LATI -1.2274 DEG

LONG -43.9063 DEG
LATI -3.0922 DEG

(1) * 65.94724 KM * (2)

LOW RESOLUTION

57.88563 KM 34.77734 KM

(4) * 64.67691 KM * (3)

LONG -44.5878 DEG
LATI -0.5934 DEG

LONG -44.9809 DEG
LATI -2.6893 DEG

LONG -43.8961 DEG
LATI -1.7326 DEG

LONG -44.2270 DEG
LATI -2.5484 DEG

(1) * 26.70119 KM * (2)

HIGH RESOLUTION

6.36176 KM 5.11487 KM

(4) * 26.64115 KM * (3)

LONG -44.0934 DEG
LATI -1.6613 DEG

LONG -44.3852 DEG
LATI -2.4897 DEG

LOW RESOLUTION 209

| INDEX | LONGITUDE | LATITUDE |
|---|---|---|
| 1 | -42.7877054 | -1.2274242 |
| 2 | -42.9643755 | -1.5188735 |
| 3 | -43.1117501 | -1.7628872 |
| 4 | -43.2380061 | -1.9725757 |
| 5 | -43.3485870 | -2.1567159 |
| 6 | -43.4472899 | -2.3214574 |
| 7 | -43.5368648 | -2.4712708 |
| 8 | -43.6193700 | -2.6095207 |
| 9 | -43.6963973 | -2.7388170 |
| 10 | -43.7692175 | -2.8612499 |
| 11 | -43.8388753 | -2.9785455 |
| 12 | -43.9062581 | -3.0921743 |
| 13 | -44.0107908 | -3.0531722 |
| 14 | -44.1115088 | -3.0155489 |
| 15 | -44.2093515 | -2.9789596 |
| 16 | -44.3051448 | -2.9430977 |
| 17 | -44.3996644 | -2.9076738 |
| 18 | -44.4936342 | -2.8724181 |
| 19 | -44.5877714 | -2.8370633 |
| 20 | -44.6827893 | -2.8013414 |
| 21 | -44.7794333 | -2.7649690 |
| 22 | -44.8784947 | -2.7276454 |
| 23 | -44.9808588 | -2.6890369 |
| 24 | -44.9561367 | -2.5609230 |
| 25 | -44.9307251 | -2.4287239 |
| 26 | -44.9043131 | -2.2907848 |
| 27 | -44.8765483 | -2.1451728 |
| 28 | -44.8470006 | -1.9895495 |
| 29 | -44.8151484 | -1.8209941 |
| 30 | -44.7803211 | -1.6357534 |
| 31 | -44.7416415 | -1.4288457 |
| 32 | -44.6979146 | -1.1934321 |
| 33 | -44.6474600 | -0.9197703 |
| 34 | -44.5877986 | -0.5933616 |
| 35 | -44.4180169 | -0.6572785 |
| 36 | -44.2536693 | -0.7183242 |
| 37 | -44.0932074 | -0.7771457 |
| 38 | -43.9352250 | -0.8343067 |
| 39 | -43.7784109 | -0.8903143 |
| 40 | -43.6214871 | -0.9456303 |
| 41 | -43.4631739 | -1.0007012 |
| 42 | -43.3021417 | -1.0559609 |
| 43 | -43.1369743 | -1.1118523 |
| 44 | -42.9660931 | -1.1688383 |

HIGH RESOLUTION 209

| INDEX | LONGITUDE | LATITUDE |
|---|---|---|
| 1 | -43.8961463 | -1.7325995 |
| 2 | -43.9335380 | -1.8247473 |
| 3 | -43.9689116 | -1.9119330 |
| 4 | -44.0025024 | -1.9947379 |
| 5 | -44.0345120 | -2.0736633 |
| 6 | -44.0651250 | -2.1491455 |
| 7 | -44.0944915 | -2.2215668 |
| 8 | -44.1227512 | -2.2912646 |
| 9 | -44.1500244 | -2.3585385 |
| 10 | -44.1764197 | -2.4236567 |
| 11 | -44.2020397 | -2.4868607 |
| 12 | -44.2269664 | -2.5483683 |
| 13 | -44.2413883 | -2.5430271 |
| 14 | -44.2557969 | -2.5376884 |
| 15 | -44.2701945 | -2.5323524 |
| 16 | -44.2845826 | -2.5270180 |
| 17 | -44.2989602 | -2.5216853 |
| 18 | -44.3133340 | -2.5163526 |
| 19 | -44.3277016 | -2.5110208 |
| 20 | -44.3420720 | -2.5056873 |
| 21 | -44.3564396 | -2.5003504 |
| 22 | -44.3708100 | -2.4950117 |
| 23 | -44.3851843 | -2.4896697 |
| 24 | -44.3631568 | -2.4271973 |
| 25 | -44.3405285 | -2.3630055 |
| 26 | -44.3172207 | -2.2968688 |
| 27 | -44.2931442 | -2.2285464 |
| 28 | -44.2682071 | -2.1577635 |
| 29 | -44.2423000 | -2.0842177 |
| 30 | -44.2153106 | -2.0075667 |
| 31 | -44.1870918 | -1.9274213 |
| 32 | -44.1574931 | -1.8433400 |
| 33 | -44.1263371 | -1.7548139 |
| 34 | -44.0934191 | -1.6612539 |
| 35 | -44.0755072 | -1.6677631 |
| 36 | -44.0576015 | -1.6742637 |
| 37 | -44.0396962 | -1.6807593 |
| 38 | -44.0217843 | -1.6872488 |
| 39 | -44.0038719 | -1.6937332 |
| 40 | -43.9859495 | -1.7002142 |
| 41 | -43.9680204 | -1.7066935 |
| 42 | -43.9500775 | -1.7131702 |
| 43 | -43.9321175 | -1.7196469 |
| 44 | -43.9141402 | -1.7261220 |

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**********
* PHOTO FRAME NUMBER 6 OF 8 *
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## FRAME 210

| | YEAR | MONTH | DAY | HOUR | MINUTE | SECOND |
|---|---|---|---|---|---|---|
| GMT | 87 | 2 | 22 | 12 | 21 | 56.399 |

| | | | | | |
|---|---|---|---|---|---|
| LONGITUDE OF NADIR POINT | = | -44.40155C3 | DEG | LATITUDE OF NADIR POINT | = | -3.1734587 | DEG |
| LONG OF CAMERA AXIS INTERSECT | = | -44.3024104 | DEG | LATI OF CAMERA AXIS INTERSECT | = | -2.2141347 | DEG |
| SPACECRAFT RADIUS | = | 1792.1968994 | KM | SPACECRAFT ALTITUDE | = | 54.1369031 | KM |
| MEAN ALTITUDE RATE | = | 0.0416434 | KM/SEC | TIME FROM PERIAPSIS | = | 81.6660910 | SEC |
| HORIZONTAL VELOCITY | = | 1.9994316 | KM/SEC | TRUE ANOMALY | = | 4.9915249 | DEG |
| SCALE FACTOR (HIGH) | = | 0.0097038 | M/KM | TILT DISTANCE (HIGH) | = | 353.4083672 | MM |
| SCALE FACTOR (LOW) | = | 0.0012726 | M/KM | TILT DISTANCE (LOW) | = | 46.3486385 | MM |
| IMAGE MOTION COMPENSATION (V/H) | = | 0.0303821 | RAD/SEC | SWING ANGLE | = | 182.1500931 | DEG |
| EMISSION ANGLE | = | 31.1250708 | DEG | INCIDENCE ANGLE | = | 68.5007124 | DEG |
| PHASE ANGLE | = | 82.2816439 | DEG | NORTH DEVIATION ANGLE | = | 336.2643433 | DEG |
| TILT ANGLE | = | 30.0861998 | DEG | RESOLUTION CONSTANT | = | 1.3641024 | MIR |
| TILT AZIMUTH | = | 22.5771477 | DEG | SUN AZIMUTH AT PRINCIPAL GND PT | = | 90.6531372 | DEG |
| SUN ANGLE AT NADIR | = | 68.3914918 | DEG | SUN ARC AT NADIR | = | 2089.8493042 | KM |
| LONGITUDE DISTANCE TO TARGET | = | -0.5345532 | DEG | LATITUDE DISTANCE TO TARGET | = | -0.7904587 | DEG |
| LONGITUDE ARC LENGTH TO TARGET | = | -16.2157903 | KM | LATITUDE ARC LENGTH TO TARGET | = | -23.9788749 | KM |
| FORWARD OVERLAP RATIO | = | 5.9186696 | PCT | SIDE OVERLAP RATIO | = | 0. | PCT |
| TIME BETWEEN PHOTOS | = | 2.8302282 | SEC | ALPHA | = | -16.5153135 | DEG. |

| DIRECTION COSINES TO TARGET | X | Y | Z | MAGNITUDE (KM) |
|---|---|---|---|---|
| CAMERA AXIS | -0.43016624 | 0.78957320 | 0.43764273 | 61.57035637 |
| C1 | -0.46427798 | 0.72406457 | 0.51007496 | 62.86186218 |
| C2 | -0.32199117 | 0.71180448 | 0.62422436 | 71.87057495 |
| C3 | -0.53308178 | 0.77149320 | 0.34742965 | 57.77917400 |
| C4 | -0.59104585 | 0.71212211 | 0.37887581 | 57.67289734 |
| | -0.38003525 | 0.65243342 | 0.65567054 | 71.70462036 |

| STATE VECTOR (1950.0) | X | Y | Z | X DOT | Y DOT | Z DOT |
|---|---|---|---|---|---|---|
| | -186.9176311 | -1607.5303497 | -769.9855499 | 1.7857115 | 0.0687374 | -0.6739238 |

LONG -42.6161 DEG
LATI -1.2824 DEG

66.21882 KM
(1) (2)

LONG -43.7395 DEG
LATI -3.1547 DEG

LOW RESOLUTION

58.02712 KM 34.85554 KM

(4) (3)
64.79509 KM

LONG -44.4235 DEG
LATI -0.6548 DEG

LONG -44.8168 DEG
LATI -2.7513 DEG

LONG -43.7301 DEG
LATI -1.7929 DEG

26.76592 KM
(1) (2)

LONG -44.0617 DEG
LATI -2.6097 DEG

HIGH RESOLUTION

6.37587 KM 5.12634 KM

(4) (3)
28.69438 KM

LONG -43.9280 DEG
LATI -1.7210 DEG

LONG -44.2203 DEG
LATI -2.5511 DEG

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HIGH RESOLUTION 210

| INDEX | LONGITUDE | LATITUDE |
|---|---|---|
| 1 | -42.8161451 | -1.2024098 |
| 2 | -42.7937065 | -1.5752661 |
| 3 | -42.7918254 | -1.8203854 |
| 4 | -43.0686622 | -2.0309746 |
| 5 | -43.1797276 | -2.2158730 |
| 6 | -43.2788439 | -2.3812660 |
| 7 | -43.3687773 | -2.5316514 |
| 8 | -43.4516034 | -2.6704127 |
| 9 | -43.5289211 | -2.8001735 |
| 10 | -43.6020074 | -2.9230340 |
| 11 | -43.6719112 | -3.0407284 |
| 12 | -43.7395229 | -3.1547354 |
| 13 | -43.8445134 | -3.1156377 |
| 14 | -43.9456344 | -3.0779359 |
| 15 | -44.0438251 | -3.0412851 |
| 16 | -44.1399293 | -3.0053728 |
| 17 | -44.2347188 | -2.9699139 |
| 18 | -44.3289242 | -2.9346351 |
| 19 | -44.4232626 | -2.8992701 |
| 20 | -44.5184517 | -2.8635491 |
| 21 | -44.6152353 | -2.8271911 |
| 22 | -44.7144065 | -2.7898949 |
| 23 | -44.8168387 | -2.7513291 |
| 24 | -44.7920895 | -2.6230812 |
| 25 | -44.7666502 | -2.4907539 |
| 26 | -44.7402072 | -2.3526936 |
| 27 | -44.7124119 | -2.2069656 |
| 28 | -44.6828370 | -2.0512338 |
| 29 | -44.6509538 | -1.8825768 |
| 30 | -44.6160994 | -1.6972482 |
| 31 | -44.5773892 | -1.4902644 |
| 32 | -44.5336318 | -1.2547988 |
| 33 | -44.4831429 | -0.9811259 |
| 34 | -44.4234571 | -0.6547675 |
| 35 | -44.2535291 | -0.7178973 |
| 36 | -44.0889354 | -0.7782223 |
| 37 | -43.9281321 | -0.8363763 |
| 38 | -43.7697196 | -0.8929149 |
| 39 | -43.6123791 | -0.9483367 |
| 40 | -43.4548340 | -1.0030906 |
| 41 | -43.2957997 | -1.0576377 |
| 42 | -43.1339345 | -1.1123876 |
| 43 | -42.9678073 | -1.1677856 |
| 44 | -42.7958164 | -1.2242935 |

HIGH RESOLUTION 210

| INDEX | LONGITUDE | LATITUDE |
|---|---|---|
| 1 | -43.7730973 | -1.7919556 |
| 2 | -43.7675781 | -1.8843356 |
| 3 | -43.8030305 | -1.9717407 |
| 4 | -43.8366961 | -2.0547514 |
| 5 | -43.8687811 | -2.1338723 |
| 6 | -43.8994589 | -2.2095405 |
| 7 | -43.9288932 | -2.2821403 |
| 8 | -43.9572115 | -2.3520080 |
| 9 | -43.9845424 | -2.4194459 |
| 10 | -44.0109959 | -2.4847229 |
| 11 | -44.0366707 | -2.5480806 |
| 12 | -44.0616522 | -2.6097358 |
| 13 | -44.0761185 | -2.6043997 |
| 14 | -44.0905676 | -2.5990662 |
| 15 | -44.1050067 | -2.5937361 |
| 16 | -44.1194353 | -2.5884086 |
| 17 | -44.1338539 | -2.5830819 |
| 18 | -44.1482654 | -2.5777569 |
| 19 | -44.1626773 | -2.5724302 |
| 20 | -44.1770821 | -2.5671035 |
| 21 | -44.1914868 | -2.5617743 |
| 22 | -44.2058954 | -2.5564433 |
| 23 | -44.2203035 | -2.5511081 |
| 24 | -44.1982422 | -2.4085085 |
| 25 | -44.1755729 | -2.4241844 |
| 26 | -44.1522236 | -2.3579127 |
| 27 | -44.1281099 | -2.2894503 |
| 28 | -44.1031284 | -2.2185231 |
| 29 | -44.0771770 | -2.1448279 |
| 30 | -44.0501361 | -2.0680216 |
| 31 | -44.0218697 | -1.9877139 |
| 32 | -43.9922194 | -1.9034610 |
| 33 | -43.9610124 | -1.8147556 |
| 34 | -43.9280329 | -1.7210070 |
| 35 | -43.9100695 | -1.7274778 |
| 36 | -43.8921061 | -1.7339425 |
| 37 | -43.8741426 | -1.7403988 |
| 38 | -43.8561759 | -1.7468507 |
| 39 | -43.8382025 | -1.7532993 |
| 40 | -43.8202219 | -1.7597453 |
| 41 | -43.8022313 | -1.7661887 |
| 42 | -43.7842269 | -1.7726296 |
| 43 | -43.7662020 | -1.7790713 |
| 44 | -43.7481599 | -1.7855122 |



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**********
* PHOTO FRAME NUMBER 7 OF 8 *
**********

## FRAME 211

| | YEAR | MONTH | DAY | HOUR | MINUTE | SECOND |
|---|---|---|---|---|---|---|
| GMT | 67 | 2 | 22 | 12 | 21 | 59.199 |

| | | | | | |
|---|---|---|---|---|---|
| LONGITUDE OF NADIR POINT | = | -44.2420464 | DEG | LATITUDE OF NADIR POINT | = | -3.2342183 | DEG |
| LONG OF CAMERA AXIS INTERSECT | = | -43.8371301 | DEG | LATI OF CAMERA AXIS INTERSECT | = | -2.2745648 | DEG |
| SPACECRAFT RADIUS | = | 1792.3154602 | KM | SPACECRAFT ALTITUDE | = | 54.2254639 | KM |
| MEAN ALTITUDE RATE | = | 0.0430630 | KM/SEC | TIME FROM PERIAPSIS | = | 84.4608183 | SEC |
| HORIZONTAL VELOCITY | = | 1.9093063 | KM/SEC | TRUE ANOMALY | = | 5.1621147 | DEG |
| SCALE FACTOR (HIGH) | = | 0.0096819 | M/KM | TILT DISTANCE (HIGH) | = | 353.4883232 | MM |
| SCALE FACTOR (LOW) | = | 0.0012698 | M/KM | TILT DISTANCE (LOW) | = | 46.3591247 | MM |
| IMAGE MOTION COMPENSATION (V/H) | = | 0.0303121 | RAD/SEC | SWING ANGLE | = | 182.4906349 | DEG |
| EMISSION ANGLE | = | 31.1332192 | DEG | INCIDENCE ANGLE | = | 68.3345003 | DEG |
| PHASE ANGLE | = | 82.2816448 | DEG | NORTH DEVIATION ANGLE | = | 336.2871399 | DEG |
| TILT ANGLE | = | 30.0918224 | DEG | RESOLUTION CONSTANT | = | 1.3671881 | MTR |
| TILT AZIMUTH | = | 22.8628559 | DEG | SUN AZIMUTH AT PRINCIPAL GND PT | = | 90.6234760 | DEG |
| SUN ANGLE AT NADIR | = | 68.7315111 | DEG | SUN ARC AT NADIR | = | 2084.9974365 | KM |
| LONGITUDE DISTANCE TO TARGET | = | -0.3750463 | DEG | LATITUDE DISTANCE TO TARGET | = | -0.8512183 | DEG |
| LONGITUDE ARC LENGTH TO TARGET | = | -11.3771756 | KM | LATITUDE ARC LENGTH TO TARGET | = | -25.8220422 | KM |
| FORWARD OVERLAP RATIO | = | 6.1993910 | PCT | SIDE OVERLAP RATIO | = | 0. | PCT |
| TIME BETWEEN PHOTOS | = | 2.7995825 | SEC | ALPHA | = | -16.6846106 | DEG. |

| | X | Y | Z | MAGNITUDE (KM) |
|---|---|---|---|---|
| DIRECTION COSINES TO TARGET | -0.48876056 | 0.73472064 | 0.47042396 | 61.32789230 |
| CAMERA AXIS | -0.46427294 | 0.72406773 | 0.51007504 | 63.00405884 |
| C1 | -0.32198621 | 0.71180665 | 0.62422445 | 72.04731750 |
| C2 | -0.53299642 | 0.77149685 | 0.34742974 | 57.91801453 |
| C3 | -0.59104091 | 0.71212617 | 0.37887590 | 57.79460144 |
| C4 | -0.38003071 | 0.65243598 | 0.65567062 | 71.85458374 |

| | X | Y | Z | X DOT | Y DOT | Z DOT |
|---|---|---|---|---|---|---|
| STATE VECTOR (1950.0) | -181.9188118 | -1607.3325958 | -771.8692856 | 1.7861525 | 0.0725702 | -0.6720850 |

LONG -42.4445 DEG
LATI -1.3371 DEG

LONG -43.5728 DEG
LATI -3.2172 DEG

* 66.49713 KM *
(1) (2)

LOW RESOLUTION

58.17561 KM 34.93703 KM

(4) (3)
* 64.73874 KM *

LONG -44.2592 DEG
LATI -0.7159 DEG

LONG -44.6530 DEG
LATI -2.8135 DEG

LONG -43.5641 DEG
LATI -1.8511 DEG

LONG -43.8964 DEG
LATI -2.6710 DEG

* 26.83290 KM *
(1) (2)

HIGH RESOLUTION

6.39112 KM 5.13829 KM

(4) (3)
* 26.74982 KM *

LONG -43.7627 DEG
LATI -1.7806 DEG

LONG -44.0555 DEG
LATI -2.6124 DEG

LOW RESOLUTION 211

| INDEX | LONGITUDE | LATITUDE |
|---|---|---|
| 1 | -42.4445024 | -1.3371342 |
| 2 | -42.6230330 | -1.6314299 |
| 3 | -42.7718596 | -1.8776804 |
| 4 | -42.8992906 | -2.0891943 |
| 5 | -43.0108480 | -2.2748679 |
| 6 | -43.1103911 | -2.4409285 |
| 7 | -43.2006931 | -2.5919005 |
| 8 | -43.2838473 | -2.7311860 |
| 9 | -43.3614621 | -2.8614240 |
| 10 | -43.4348183 | -2.9847243 |
| 11 | -43.5049744 | -3.1028285 |
| 12 | -43.5728254 | -3.2172248 |
| 13 | -43.6782837 | -3.1780272 |
| 14 | -43.7798142 | -3.1402443 |
| 15 | -43.8783674 | -3.1035269 |
| 16 | -43.9747891 | -3.0675642 |
| 17 | -44.0698586 | -3.0320669 |
| 18 | -44.1643133 | -2.9967625 |
| 19 | -44.2588634 | -2.9613838 |
| 20 | -44.3542299 | -2.9256611 |
| 21 | -44.4511604 | -2.8893143 |
| 22 | -44.5504475 | -2.8520419 |
| 23 | -44.6529617 | -2.8135162 |
| 24 | -44.6281819 | -2.6851240 |
| 25 | -44.6027088 | -2.5526576 |
| 26 | -44.5762386 | -2.4144658 |
| 27 | -44.5484123 | -2.2686097 |
| 28 | -44.5188069 | -2.1127551 |
| 29 | -44.4868960 | -1.9439845 |
| 30 | -44.4520073 | -1.7585491 |
| 31 | -44.4132633 | -1.5514732 |
| 32 | -44.3694749 | -1.3159367 |
| 33 | -44.3189521 | -1.0422254 |
| 34 | -44.2592320 | -0.7158875 |
| 35 | -44.0891433 | -0.7782386 |
| 36 | -43.9242868 | -0.8378490 |
| 37 | -43.7631283 | -0.8953405 |
| 38 | -43.6042686 | -0.9512609 |
| 39 | -43.4463887 | -1.0060988 |
| 40 | -43.2882080 | -1.0603057 |
| 41 | -43.1284366 | -1.1143172 |
| 42 | -42.9657173 | -1.1685574 |
| 43 | -42.7986064 | -1.2234610 |
| 44 | -42.6254854 | -1.2794882 |

HIGH RESOLUTION 211

| INDEX | LONGITUDE | LATITUDE |
|---|---|---|
| 1 | -43.5640998 | -1.8511230 |
| 2 | -43.6016660 | -1.9437429 |
| 3 | -43.6372037 | -2.0313759 |
| 4 | -43.6709480 | -2.1146001 |
| 5 | -43.7031078 | -2.1939225 |
| 6 | -43.7338543 | -2.2697845 |
| 7 | -43.7633538 | -2.3425679 |
| 8 | -43.7917366 | -2.4126123 |
| 9 | -43.8191323 | -2.4802201 |
| 10 | -43.8456440 | -2.5456610 |
| 11 | -43.8713732 | -2.6091749 |
| 12 | -43.8964057 | -2.6709847 |
| 13 | -43.9109201 | -2.6656529 |
| 14 | -43.9254136 | -2.6603262 |
| 15 | -43.9398971 | -2.6550012 |
| 16 | -43.9543667 | -2.6496796 |
| 17 | -43.9688296 | -2.6443581 |
| 18 | -43.9832859 | -2.6390382 |
| 19 | -43.9977317 | -2.6337192 |
| 20 | -44.0121775 | -2.6283985 |
| 21 | -44.0266232 | -2.6230769 |
| 22 | -44.0410657 | -2.6177528 |
| 23 | -44.0555148 | -2.6124252 |
| 24 | -44.0334125 | -2.5496925 |
| 25 | -44.0107055 | -2.4852309 |
| 26 | -43.9873123 | -2.4188184 |
| 27 | -43.9631538 | -2.3502100 |
| 28 | -43.9381280 | -2.2791333 |
| 29 | -43.9121323 | -2.2052810 |
| 30 | -43.8850436 | -2.1283134 |
| 31 | -43.8567224 | -2.0478358 |
| 32 | -43.8270211 | -1.9634061 |
| 33 | -43.7957525 | -1.8745138 |
| 34 | -43.7627149 | -1.7805680 |
| 35 | -43.7446938 | -1.7870011 |
| 36 | -43.7266755 | -1.7934275 |
| 37 | -43.7086539 | -1.7998479 |
| 38 | -43.6906257 | -1.8062640 |
| 39 | -43.6725941 | -1.8126767 |
| 40 | -43.6545520 | -1.8190860 |
| 41 | -43.6364965 | -1.8254935 |
| 42 | -43.6184273 | -1.8318994 |
| 43 | -43.6003375 | -1.8383061 |
| 44 | -43.5822306 | -1.8447137 |

**********
* PHOTO FRAME NUMBER 8 OF 8 *
**********

# FRAME 212

| | YEAR | MONTH | DAY | HOUR | MINUTE | SECOND |
|---|---|---|---|---|---|---|
| GMT | 67 | 2 | 22 | 12 | 22 | 2.099 |

| | | | | | |
|---|---|---|---|---|---|
| LONGITUDE OF NADIR POINT | = | -44.0767899 | DEG | LATITUDE OF NADIR POINT | = -3.2971372 DEG |
| LONG OF CAMERA AXIS INTERSECT | = | -43.6658254 | DEG | LATI OF CAMERA AXIS INTERSECT | = -2.3370610 DEG |
| SPACECRAFT RADIUS | = | 1792.4424744 | KM | SPACECRAFT ALTITUDE | = 54.3524780 KM |
| MEAN ALTITUDE RATE | = | 0.0445332 | KM/SEC | TIME FROM PERIAPSIS | = 87.3563795 SEC |
| HORIZONTAL VELOCITY | = | 1.9091721 | KM/SEC | TRUE ANOMALY | = 5.3388376 DEG |
| SCALE FACTOR (HIGH) | = | 0.0096585 | M/KM | TILT DISTANCE (HIGH) | = 353.5842590 MM |
| SCALE FACTOR (LOW) | = | 0.0012667 | M/KM | TILT DISTANCE (LOW) | = 46.3717060 MM |
| IMAGE MOTION COMPENSATION (V/H) | = | 0.0302371 | RAD/SEC | SWING ANGLE | = 182.8432674 DEG |
| EMISSION ANGLE | = | 31.1427038 | DEG | INCIDENCE ANGLE | = 68.1622753 DEG |
| PHASE ANGLE | = | 82.2816458 | DEG | NORTH DEVIATION ANGLE | = 336.3111076 DEG |
| TILT ANGLE | = | 30.0985677 | DEG | RESOLUTION CONSTANT | = 1.3705049 MTR |
| TILT AZIMUTH | = | 23.1585181 | DEG | SUN AZIMUTH AT PRINCIPAL GND PT | = 90.5923586 DEG |
| SUN ANGLE AT NADIR | = | 68.5658445 | DEG | SUN ARC AT NADIR | = 2079.9718933 KM |
| LONGITUDE DISTANCE TO TARGET | = | -0.2097898 | DEG | LATITUDE DISTANCE TO TARGET | = -0.9141372 DEG |
| LONGITUDE ARC LENGTH TO TARGET | = | -6.3640547 | KM | LATITUDE ARC LENGTH TO TARGET | = -27.7307110 KM |
| FORWARD OVERLAP RATIO | = | 3.0475699 | PCT | SIDE OVERLAP RATIO | = 0. PCT |
| TIME BETWEEN PHOTOS | = | 2.9006481 | SEC | ALPHA | = -16.8597972 DEG. |

| | X | Y | Z | MAGNITUDE (KM) |
|---|---|---|---|---|
| DIRECTION COSINES TO TARGET | -0.54555394 | 0.67203513 | 0.50073913 | 61.55382538 |
| CAMERA AXIS | -0.46426778 | 0.72407096 | 0.51007516 | 63.15690613 |
| C1 | -0.32198113 | 0.71180885 | 0.62422457 | 72.23686218 |
| C2 | -0.53299093 | 0.77150058 | 0.34742986 | 58.06694031 |
| C3 | -0.59103584 | 0.71213032 | 0.37887602 | 57.92567444 |
| C4 | -0.38002605 | 0.65243859 | 0.65567071 | 72.01623535 |

| | X | Y | Z | X DOT | Y DOT | Z DOT |
|---|---|---|---|---|---|---|
| STATE VECTOR (1950.0) | -176.7383060 | -1607.1163788 | -773.8155746 | 1.7865969 | 0.0765401 | -0.6701754 |

LONG -42.2664 DEG
LATI -1.3936 DEG

(1) * 66.79272 KM * (2)

LONG -43.4000 DEG
LATI -3.2819 DEG

LOW RESOLUTION

58.33695 KM 35.02490 KM

(4) * 64.77934 KM * (3)

LONG -44.0891 DEG
LATI -0.7790 DEG

LONG -44.4832 DEG
LATI -2.8779 DEG

LONG -43.3920 DEG
LATI -1.9123 DEG

(1) * 26.90473 KM * (2)

LONG -43.7251 DEG
LATI -2.7344 DEG

HIGH RESOLUTION

6.40760 KM 5.15118 KM

(4) * 26.80962 KM * (3)

LONG -43.5914 DEG
LATI -1.8421 DEG

LONG -43.8847 DEG
LATI -2.6759 DEG

LOW RESOLUTION 212

| INDEX | LONGITUDE | LATITUDE |
|---|---|---|
| 1 | -42.2664428 | -1.3935976 |
| 2 | -42.4459743 | -1.6894225 |
| 3 | -42.5955791 | -1.9368743 |
| 4 | -42.7236385 | -2.1493683 |
| 5 | -42.8357253 | -2.3358666 |
| 6 | -42.9357123 | -2.5026359 |
| 7 | -43.0264106 | -2.6542320 |
| 8 | -43.1099129 | -2.7940750 |
| 9 | -43.1878386 | -2.9248193 |
| 10 | -43.2614884 | -3.0485874 |
| 11 | -43.3319111 | -3.1671288 |
| 12 | -43.4000149 | -3.2819374 |
| 13 | -43.5059719 | -3.2426340 |
| 14 | -43.6079397 | -3.2047631 |
| 15 | -43.7068782 | -3.1679757 |
| 16 | -43.8036418 | -3.1319567 |
| 17 | -43.8990116 | -3.0964167 |
| 18 | -43.9937258 | -3.0610816 |
| 19 | -44.0885048 | -3.0256858 |
| 20 | -44.1840696 | -2.9899588 |
| 21 | -44.2811604 | -2.9536205 |
| 22 | -44.3805776 | -2.9163712 |
| 23 | -44.4831839 | -2.8778831 |
| 24 | -44.4583697 | -2.7493304 |
| 25 | -44.4328694 | -2.6167094 |
| 26 | -44.4063649 | -2.4783674 |
| 27 | -44.3785043 | -2.3323661 |
| 28 | -44.3488650 | -2.1763723 |
| 29 | -44.3169165 | -2.0074677 |
| 30 | -44.2819972 | -1.8219060 |
| 31 | -44.2432189 | -1.6147173 |
| 32 | -44.1993895 | -1.3790835 |
| 33 | -44.1488323 | -1.1053081 |
| 34 | -44.0890718 | -0.7789617 |
| 35 | -43.9187984 | -0.8405128 |
| 36 | -43.7536550 | -0.8993873 |
| 37 | -43.5921106 | -0.9561974 |
| 38 | -43.4327726 | -1.0114801 |
| 39 | -43.2743192 | -1.0657144 |
| 40 | -43.1154623 | -1.1193502 |
| 41 | -42.9549050 | -1.1728118 |
| 42 | -42.7912846 | -1.2265244 |
| 43 | -42.6231322 | -1.2809157 |
| 44 | -42.4488120 | -1.3364417 |

HIGH RESOLUTION 212

| INDEX | LONGITUDE | LATITUDE |
|---|---|---|
| 1 | -43.3920236 | -1.9122719 |
| 2 | -43.4296689 | -2.0051506 |
| 3 | -43.4653149 | -2.0930243 |
| 4 | -43.4991450 | -2.1764781 |
| 5 | -43.5313835 | -2.2560183 |
| 6 | -43.5622082 | -2.3320861 |
| 7 | -43.5917759 | -2.4050667 |
| 8 | -43.6202269 | -2.4753006 |
| 9 | -43.6476879 | -2.5430903 |
| 10 | -43.6742606 | -2.6087070 |
| 11 | -43.7000513 | -2.6723917 |
| 12 | -43.7251458 | -2.7343663 |
| 13 | -43.7397041 | -2.7290387 |
| 14 | -43.7542491 | -2.7237163 |
| 15 | -43.7687769 | -2.7183965 |
| 16 | -43.7832942 | -2.7130792 |
| 17 | -43.7978020 | -2.7077644 |
| 18 | -43.8122988 | -2.7024505 |
| 19 | -43.8267889 | -2.6971375 |
| 20 | -43.8412757 | -2.6918227 |
| 21 | -43.8557630 | -2.6865089 |
| 22 | -43.8702497 | -2.6811924 |
| 23 | -43.8847365 | -2.6758717 |
| 24 | -43.8625927 | -2.6129938 |
| 25 | -43.8398414 | -2.5483854 |
| 26 | -43.8164072 | -2.4818217 |
| 27 | -43.7921977 | -2.4130571 |
| 28 | -43.7671242 | -2.3418182 |
| 29 | -43.7410803 | -2.2677978 |
| 30 | -43.7139373 | -2.1906551 |
| 31 | -43.6855612 | -2.1099948 |
| 32 | -43.6558022 | -2.0253730 |
| 33 | -43.6244721 | -1.9362800 |
| 34 | -43.5913696 | -1.8421208 |
| 35 | -43.5732865 | -1.8485147 |
| 36 | -43.5552073 | -1.8549026 |
| 37 | -43.5371242 | -1.8612863 |
| 38 | -43.5190344 | -1.8676648 |
| 39 | -43.5009379 | -1.8740391 |
| 40 | -43.4828277 | -1.8804125 |
| 41 | -43.4647036 | -1.8867834 |
| 42 | -43.4465661 | -1.8931542 |
| 43 | -43.4284081 | -1.8995251 |
| 44 | -43.4102297 | -1.9058977 |

**********
* PHOTO FRAME NUMBER 1 OF 1 *
**********

## FRAME 213

| | YEAR | MONTH | DAY | HOUR | MINUTE | SECOND |
|---|---|---|---|---|---|---|
| GMT | 67 | 2 | 22 | 15 | 46 | 56.499 |

| | | | | | | |
|---|---|---|---|---|---|---|
| LONGITUDE OF NADIR POINT | = | -58.0553284 | DEG | LATITUDE OF NADIR POINT | = | 1.3329618 DEG |
| LONG OF CAMERA AXIS INTERSECT | = | -59.7366695 | DEG | LATI OF CAMERA AXIS INTERSECT | = | -3.0780537 DEG |
| SPACECRAFT RADIUS | = | 1795.0280304 | KM | SPACECRAFT ALTITUDE | = | 56.9380341 KM |
| MEAN ALTITUDE RATE | = | -0.0635199 | KM/SEC | TIME FROM PERIAPSIS | = | -125.0877361 SEC |
| HORIZONTAL VELOCITY | = | 1.9064730 | KM/SEC | TRUE ANOMALY | = | 352.3654556 DEG |
| SCALE FACTOR (HIGH) | = | 0.0039046 | M/KM | TILT DISTANCE (HIGH) | = | 1388.5924530 MM |
| SCALE FACTOR (LOW) | = | 0.0005121 | M/KM | TILT DISTANCE (LOW) | = | 182.1104851 MM |
| IMAGE MOTION COMPENSATION (V/H) | = | 0.0122086 | RAD/SEC | SWING ANGLE | = | 1.7332691 DEG |
| EMISSION ANGLE | = | 71.0047922 | DEG | INCIDENCE ANGLE | = | 82.4783506 DEG |
| PHASE ANGLE | = | 68.8360558 | DEG | NORTH DEVIATION ANGLE | = | 312.2031479 DEG |
| TILT ANGLE | = | 66.2844143 | DEG | RESOLUTION CONSTANT | = | 3.3900862 MTR |
| TILT AZIMUTH | = | 200.8563919 | DEG | SUN AZIMUTH AT PRINCIPAL GND PT | = | 91.0238848 DEG |
| SUN ANGLE AT NADIR | = | 80.8992739 | DEG | SUN ARC AT NADIR | = | 2454.1113281 KM |
| LONGITUDE DISTANCE TO TARGET | = | 2.4946718 | DEG | LATITUDE DISTANCE TO TARGET | = | 6.3329617 DEG |
| LONGITUDE ARC LENGTH TO TARGET | = | 75.6768503 | KM | LATITUDE ARC LENGTH TO TARGET | = | 192.1128845 KM |
| FORWARD OVERLAP RATIO | = | 0. | PCT | SIDE OVERLAP RATIO | = | 0. PCT |
| TIME BETWEEN PHOTOS | = | 0. | SEC | ALPHA | = | -2.5253031 DEG. |

| | X | Y | Z | MAGNITUDE (KM) |
|---|---|---|---|---|
| DIRECTION COSINES TO TARGET | -0.45190509 | 0.06918423 | -0.88937919 | 217.27667999 |
| CAMERA AXIS | -0.47881218 | 0.15184073 | -0.86468681 | 156.22517395 |
| C1 | -0.50502305 | 0.32123786 | -0.80109797 | 105.97270966 |
| C2 | -0.37402263 | 0.03640985 | -0.92670460 | 423.26176834 |
| C3 | -0.44559272 | -0.00633920 | -0.89521335 | 405.36797714 |
| C4 | -0.57479651 | 0.27567427 | -0.77046263 | 106.49729156 |

| | X | Y | Z | X DOT | Y DOT | Z DOT |
|---|---|---|---|---|---|---|
| STATE VECTOR (1950.0) | -550.1204529 | -1592.8333588 | -618.3648224 | 1.7203937 | -0.2136566 | -0.7957835 |

LONG -57.9502 DEG
LATI -0.6600 DEG

LONG -58.2105 DEG
LATI -7.4733 DEG

(1) * 83.82743 KM * (2)

LOW RESOLUTION

51.56958 KM 202.70315 KM

(4) * 209.38363 KM * (3)

LONG -59.5624 DEG
LATI -0.1207 DEG

LONG -64.9089 DEG
LATI -6.7511 DEG

LONG -58.9589 DEG
LATI -1.4222 DEG

LONG -62.3060 DEG
LATI -11.6333 DEG

(1) * 105.97271 KM * (2)

HIGH RESOLUTION

9.44670 KM 423.26177 KM

(4) * 302.75828 KM * (3)

LONG -59.2560 DEG
LATI -1.3284 DEG

LONG -63.2492 DEG
LATI -10.6473 DEG

LOW RESOLUTION 213

| INDEX | LONGITUDE | LATITUDE |
|---|---|---|
| 1 | -57.9501653 | -0.6600379 |
| 2 | -57.9634500 | -0.9607523 |
| 3 | -57.9790673 | -1.3193560 |
| 4 | -57.9979730 | -1.7610763 |
| 5 | -58.0217457 | -2.3288656 |
| 6 | -58.0532498 | -3.1042270 |
| 7 | -58.0986056 | -4.2714593 |
| 8 | -58.1759815 | -6.4287490 |
| 9 | 0. | 0. |
| 10 | 0. | 0. |
| 11 | 0. | 0. |
| 12 | 0. | 0. |
| 13 | 0. | 0. |
| 14 | 0. | 0. |
| 15 | 0. | 0. |
| 16 | 0. | 0. |
| 17 | 0. | 0. |
| 18 | 0. | 0. |
| 19 | 0. | 0. |
| 20 | 0. | 0. |
| 21 | 0. | 0. |
| 22 | 0. | 0. |
| 23 | 0. | 0. |
| 24 | 0. | 0. |
| 25 | 0. | 0. |
| 26 | 0. | 0. |
| 27 | -63.8086472 | -5.4251730 |
| 28 | -62.0437093 | -3.2540779 |
| 29 | -61.2020936 | -2.2011539 |
| 30 | -60.6671906 | -1.5265037 |
| 31 | -60.2849493 | -1.0419385 |
| 32 | -59.9923339 | -0.6696608 |
| 33 | -59.7575459 | -0.3701416 |
| 34 | -59.5624347 | -0.1207091 |
| 35 | -59.4022055 | -0.1718680 |
| 36 | -59.2487001 | -0.2213818 |
| 37 | -59.1003485 | -0.2697020 |
| 38 | -58.9557705 | -0.3172375 |
| 39 | -58.8137093 | -0.3643718 |
| 40 | -58.6730042 | -0.4114728 |
| 41 | -58.5325379 | -0.4589119 |
| 42 | -58.3912010 | -0.5070647 |
| 43 | -58.2478490 | -0.5563334 |
| 44 | -58.1012797 | -0.6071603 |

CORNER 2 , 3 OF LOW RESOLUTION FRAME 1 IS OFF THE MOON

HIGH RESOLUTION 213

| INDEX | LONGITUDE | LATITUDE |
|---|---|---|
| 1 | -58.9589362 | -1.4221709 |
| 2 | -59.0299635 | -1.6430028 |
| 3 | -59.1104503 | -1.8931517 |
| 4 | -59.2028527 | -2.1801827 |
| 5 | -59.3106127 | -2.5147151 |
| 6 | -59.4387846 | -2.9122919 |
| 7 | -59.5951991 | -3.3969262 |
| 8 | -59.7929330 | -4.0086542 |
| 9 | -60.0565238 | -4.8222287 |
| 10 | -60.4418216 | -6.0069652 |
| 11 | -61.1470146 | -8.1584107 |
| 12 | 0. | 0. |
| 13 | 0. | 0. |
| 14 | 0. | 0. |
| 15 | 0. | 0. |
| 16 | 0. | 0. |
| 17 | 0. | 0. |
| 18 | 0. | 0. |
| 19 | 0. | 0. |
| 20 | 0. | 0. |
| 21 | 0. | 0. |
| 22 | 0. | 0. |
| 23 | 0. | 0. |
| 24 | -62.1320510 | -8.1006306 |
| 25 | -61.1716685 | -5.8691977 |
| 26 | -60.6659784 | -4.6808165 |
| 27 | -60.3240452 | -3.8726719 |
| 28 | -60.0691390 | -3.2680269 |
| 29 | -59.8683214 | -2.7904686 |
| 30 | -59.7042398 | -2.3995291 |
| 31 | -59.5665979 | -2.0710960 |
| 32 | -59.4487839 | -1.7896436 |
| 33 | -59.3463106 | -1.5445977 |
| 34 | -59.2559915 | -1.3284461 |
| 35 | -59.2287936 | -1.3369071 |
| 36 | -59.2016439 | -1.3453765 |
| 37 | -59.1745448 | -1.3538545 |
| 38 | -59.1474872 | -1.3623435 |
| 39 | -59.1204705 | -1.3708446 |
| 40 | -59.0934844 | -1.3793592 |
| 41 | -59.0665321 | -1.3878867 |
| 42 | -59.0396042 | -1.3964313 |
| 43 | -59.0127001 | -1.4049921 |
| 44 | -58.9858131 | -1.4135708 |

CORNER 2 , 3 OF HIGH RESOLUTION FRAME 1 IS OFF THE MOON

05/19/2005 14:48 8642375



**********
* PHOTO FRAME NUMBER 1 OF 1 *
**********

FRAME 214

| | YEAR | MONTH | DAY | HOUR | MINUTE | SECOND |
|---|---|---|---|---|---|---|
| GMT | 67 | 2 | 22 | 22 | 43 | 4.199 |

| | | | | | |
|---|---|---|---|---|---|
| LONGITUDE OF NADIR POINT | = | -64.4500504 | DEG | LATITUDE OF NADIR POINT | = 1.9754999 DEG |
| LONG OF CAMERA AXIS INTERSECT | = | -64.4456644 | DEG | LATI OF CAMERA AXIS INTERSECT | = 6.9767863 DEG |
| SPACECRAFT RADIUS | = | 1799.4848938 | KM | SPACECRAFT ALTITUDE | = 61.3948975 KM |
| MEAN ALTITUDE RATE | = | -0.0861574 | KM/SEC | TIME FROM PERIAPSIS | = -170.7229271 SEC |
| HORIZONTAL VELOCITY | = | 1.9020176 | KM/SEC | TRUE ANOMALY | = 349.6041222 DEG |
| SCALE FACTOR (HIGH) | = | 0.0036728 | M/KM | TILT DISTANCE (HIGH) | = 1359.0093536 MM |
| SCALE FACTOR (LOW) | = | 0.0004817 | M/KM | TILT DISTANCE (LOW) | = 178.2307358 MM |
| IMAGE MOTION COMPENSATION (V/H) | = | 0.0109246 | RAD/SEC | SWING ANGLE | = 168.8185844 DEG |
| EMISSION ANGLE | = | 70.8280554 | DEG | INCIDENCE ANGLE | = 83.9639683 DEG |
| PHASE ANGLE | = | 86.0255289 | DEG | NORTH DEVIATION ANGLE | = 348.6658173 DEG |
| TILT ANGLE | = | 65.8267679 | DEG | RESOLUTION CONSTANT | = 3.6040923 MTR |
| TILT AZIMUTH | = | 0.3498264 | DEG | SUN AZIMUTH AT PRINCIPAL GND PT | = 92.1721134 DEG |
| SUN ANGLE AT NADIR | = | 83.8020649 | DEG | SUN ARC AT NADIR | = 2542.16864C1 KM |
| LONGITUDE DISTANCE TO TARGET | = | 0.1329498 | DEG | LATITUDE DISTANCE TO TARGET | = -5.0245091 DEG |
| LONGITUDE ARC LENGTH TO TARGET | = | 4.0330853 | KM | LATITUDE ARC LENGTH TO TARGET | = -152.4201870 KM |
| FORWARD OVERLAP RATIO | = | 0. | PCT | SIDE OVERLAP RATIO | = 0. PCT |
| TIME BETWEEN PHOTOS | = | 0. | SEC | ALPHA | = -14.1165274 DEG. |

| | X | Y | Z | MAGNITUDE (KM) |
|---|---|---|---|---|
| DIRECTION COSINES TO TARGET | -0.21114562 | 0.38603803 | 0.89799341 | 166.80272675 |
| CAMERA AXIS | -0.18935842 | 0.39794847 | 0.89765272 | 166.08720398 |
| C1 | -0.05687378 | 0.29782708 | 0.95292413 | 422.84754181 |
| C2 | -0.24824658 | 0.54253916 | 0.80251193 | 112.31077576 |
| C3 | -0.32015832 | 0.49103446 | 0.81017517 | 115.91528320 |
| C4 | -0.13851915 | 0.25879795 | 0.95594773 | 424.61959076 |

| | X | Y | Z | X DOT | Y DOT | Z DOT |
|---|---|---|---|---|---|---|
| STATE VECTOR (1950.0) | -628.3607559 | -1578.8227386 | -592.1380386 | 1.7007074 | -0.2746073 | -0.8107278 |

LONG -59.6559 DEG
LATI 13.9512 DEG

LONG -63.8109 DEG
LATI 3.7534 DEG

* 308.12838 KM *
(1) (2)

LOW RESOLUTION

178.53825 KM 58.09293 KM

(4) (3)
* 100.39892 KM *

LONG -67.3357 DEG
LATI 10.2748 DEG

LONG -65.6664 DEG
LATI 4.2448 DEG

LONG -63.3340 DEG
LATI 15.5167 DEG

LONG -64.4128 DEG
LATI 5.0224 DEG

* 317.78623 KM *
(1) (2)

HIGH RESOLUTION

164.62503 KM 10.75249 KM

(4) (3)
* 115.91529 KM *

LONG -64.6441 DEG
LATI 15.6185 DEG

LONG -64.7457 DEG
LATI 5.1476 DEG

LOW RESOLUTION 214

| INDEX | LONGITUDE | LATITUDE |
|---|---|---|
| 1 | 0. | 0. |
| 2 | 0. | 0. |
| 3 | 0. | 0. |
| 4 | -61.1239152 | 10.3992275 |
| 5 | -62.1703887 | 7.8262765 |
| 6 | -62.6841044 | 6.5545764 |
| 7 | -63.0144157 | 5.7347412 |
| 8 | -63.2521915 | 5.1437975 |
| 9 | -63.4351826 | 4.6886490 |
| 10 | -63.5826259 | 4.3217372 |
| 11 | -63.7055764 | 4.0156841 |
| 12 | -63.8109250 | 3.7533921 |
| 13 | -63.9639997 | 3.7916659 |
| 14 | -64.1161213 | 3.8301045 |
| 15 | -64.2684994 | 3.8690093 |
| 16 | -64.4223499 | 3.9086978 |
| 17 | -64.5789385 | 3.9495158 |
| 18 | -64.7396193 | 3.9918434 |
| 19 | -64.9059029 | 4.0361218 |
| 20 | -65.0795031 | 4.0828599 |
| 21 | -65.2624216 | 4.1326784 |
| 22 | -65.4570827 | 4.1863356 |
| 23 | -65.6664448 | 4.2447857 |
| 24 | -65.7635021 | 4.6243837 |
| 25 | -65.8839111 | 5.0898748 |
| 26 | -66.0401964 | 5.6853110 |
| 27 | -66.2566719 | 6.4942377 |
| 28 | -66.5902624 | 7.7063298 |
| 29 | -67.2387304 | 9.9509827 |
| 30 | 0. | 0. |
| 31 | 0. | 0. |
| 32 | 0. | 0. |
| 33 | 0. | 0. |
| 34 | 0. | 0. |
| 35 | 0. | 0. |
| 36 | 0. | 0. |
| 37 | 0. | 0. |
| 38 | 0. | 0. |
| 39 | 0. | 0. |
| 40 | 0. | 0. |
| 41 | 0. | 0. |
| 42 | 0. | 0. |
| 43 | 0. | 0. |
| 44 | 0. | 0. |

CORNER 1 , 4 OF LOW RESOLUTION FRAME 1 IS OFF THE MOON

HIGH RESOLUTION 214

| INDEX | LONGITUDE | LATITUDE |
|---|---|---|
| 1 | 0. | 0. |
| 2 | -63.7076869 | 11.5896782 |
| 3 | -63.9013362 | 9.6863513 |
| 4 | -64.0221958 | 8.5389888 |
| 5 | -64.1099606 | 7.7240875 |
| 6 | -64.1783485 | 7.0993754 |
| 7 | -64.2339525 | 6.5978696 |
| 8 | -64.2805004 | 6.1823593 |
| 9 | -64.3203201 | 5.8299796 |
| 10 | -64.3549633 | 5.5256690 |
| 11 | -64.3855181 | 5.2589962 |
| 12 | -64.4127769 | 5.0224472 |
| 13 | -64.4422121 | 5.0333746 |
| 14 | -64.4717932 | 5.0443832 |
| 15 | -64.5015287 | 5.0554754 |
| 16 | -64.5314283 | 5.0666547 |
| 17 | -64.5614910 | 5.0779228 |
| 18 | -64.5917244 | 5.0892831 |
| 19 | -64.6221399 | 5.1007391 |
| 20 | -64.6527386 | 5.1122940 |
| 21 | -64.6835289 | 5.1239498 |
| 22 | -64.7145214 | 5.1357096 |
| 23 | -64.7457218 | 5.1475788 |
| 24 | -64.7386322 | 5.4009523 |
| 25 | -64.7308664 | 5.6882113 |
| 26 | -64.7223082 | 6.0182469 |
| 27 | -64.7128000 | 6.4036378 |
| 28 | -64.7021523 | 6.8629748 |
| 29 | -64.6901312 | 7.4254110 |
| 30 | -64.6764603 | 8.1406265 |
| 31 | -64.6609116 | 9.1048213 |
| 32 | -64.6438017 | 10.5521418 |
| 33 | -64.6324835 | 13.5391260 |
| 34 | 0. | 0. |
| 35 | 0. | 0. |
| 36 | 0. | 0. |
| 37 | 0. | 0. |
| 38 | 0. | 0. |
| 39 | 0. | 0. |
| 40 | 0. | 0. |
| 41 | 0. | 0. |
| 42 | 0. | 0. |
| 43 | 0. | 0. |
| 44 | 0. | 0. |

CORNER 1 , 4 OF HIGH RESOLUTION FRAME 1 IS OFF THE MOON



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**********
* PHOTO FRAME NUMBER 1 OF 1 *
**********

## FRAME 215

| | YEAR | MONTH | DAY | HOUR | MINUTE | SECOND |
|---|---|---|---|---|---|---|
| GMT | 67 | 2 | 23 | 2 | 11 | 23.900 |

| | | | | | | |
|---|---|---|---|---|---|---|
| LONGITUDE OF NADIR POINT | = | -66.7316945 | DEG | LATITUDE OF NADIR POINT | = | 2.0988531 DEG |
| LONG OF CAMERA AXIS INTERSECT | = | -66.7422676 | DEG | LATI OF CAMERA AXIS INTERSECT | = | 2.1150141 DEG |
| SPACECRAFT RADIUS | = | 1800.5896606 | KM | SPACECRAFT ALTITUDE | = | 62.4996643 KM |
| MEAN ALTITUDE RATE | = | -0.0892491 | KM/SEC | TIME FROM PERIAPSIS | = | -177.1815338 SEC |
| HORIZONTAL VELOCITY | = | 1.9009883 | KM/SEC | TRUE ANOMALY | = | 349.2188721 DEG |
| SCALE FACTOR (HIGH) | = | 0.0097578 | M/KM | TILT DISTANCE (HIGH) | = | 12.9270121 MM |
| SCALE FACTOR (LOW) | = | 0.0012797 | M/KM | TILT DISTANCE (LOW) | = | 1.6953458 MM |
| IMAGE MOTION COMPENSATION (V/H) | = | 0.0304323 | RAD/SEC | SWING ANGLE | = | 90.9970722 DEG |
| EMISSION ANGLE | = | 1.2576828 | DEG | INCIDENCE ANGLE | = | 84.3415604 DEG |
| PHASE ANGLE | = | 83.1608143 | DEG | NORTH DEVIATION ANGLE | = | 339.2736130 DEG |
| TILT ANGLE | = | 1.2140203 | DEG | RESOLUTION CONSTANT | = | 1.3565583 MTR |
| TILT AZIMUTH | = | 291.7296982 | DEG | SUN AZIMUTH AT PRINCIPAL GND PT | = | 91.6271667 DEG |
| SUN ANGLE AT NADIR | = | 84.3005638 | DEG | SUN ARC AT NADIR | = | 2557.2907715 KM |
| LONGITUDE DISTANCE TO TARGET | = | 0.2983055 | DEG | LATITUDE DISTANCE TO TARGET | = | 0.2658530 DEG |
| LONGITUDE ARC LENGTH TO TARGET | = | 9.0492150 | KM | LATITUDE ARC LENGTH TO TARGET | = | 8.0647568 KM |
| FORWARD OVERLAP RATIO | = | 0. | PCT | SIDE OVERLAP RATIO | = | 0. PCT |
| TIME BETWEEN PHOTOS | = | 0. | SEC | ALPHA | = | 1.1805840 DEG. |

| | X | Y | Z | MAGNITUDE (KM) |
|---|---|---|---|---|
| DIRECTION COSINES TO TARGET | -0.51660530 | 0.84067135 | -0.16245200 | 63.70493841 |
| CAMERA AXIS | -0.41335229 | 0.91011633 | -0.02877774 | 62.51420593 |
| C1 | -0.31342045 | 0.94187504 | 0.12099190 | 63.55732727 |
| C2 | -0.42350731 | 0.88144023 | -0.20905667 | 63.54861450 |
| C3 | -0.49946743 | 0.84793613 | -0.17758546 | 63.67481995 |
| C4 | -0.38938057 | 0.90837094 | 0.15246309 | 63.68357849 |

| | X | Y | Z | X DOT | Y DOT | Z DOT |
|---|---|---|---|---|---|---|
| STATE VECTOR (1950.0) | -638.9180069 | -1577.5515900 | -587.5695190 | 1.6969441 | -0.2822639 | -0.8138976 |

LONG -65.7848 DEG
LATI 2.6463 DEG

(1) • 50.69504 KM • (2)

LONG -66.3776 DEG
LATI 1.0836 DEG

LOW RESOLUTION

43.19597 KM 43.18241 KM

(4) • 51.47352 KM • (3)

LONG -67.1136 DEG
LATI 3.1627 DEG

LONG -67.7139 DEG
LATI 1.5753 DEG

LONG -66.5241 DEG
LATI 2.4281 DEG

(1) • 22.44271 KM • (2)

LONG -66.7862 DEG
LATI 1.7362 DEG

HIGH RESOLUTION

5.65000 KM 5.64922 KM

(4) • 22.48728 KM • (3)

LONG -66.6982 DEG
LATI 2.4947 DEG

LONG -66.9608 DEG
LATI 1.8014 DEG

LOW RESOLUTION 215

| INDEX | LONGITUDE | LATITUDE |
|---|---|---|
| 1 | -65.7848253 | 2.6463124 |
| 2 | -65.8438969 | 2.4927577 |
| 3 | -65.9000063 | 2.3464636 |
| 4 | -65.9539204 | 2.2054860 |
| 5 | -66.0063009 | 2.0681334 |
| 6 | -66.0577393 | 1.9328803 |
| 7 | -66.1087885 | 1.7982914 |
| 8 | -66.1599770 | 1.6629632 |
| 9 | -66.2118521 | 1.5254587 |
| 10 | -66.2649775 | 1.3842462 |
| 11 | -66.3199816 | 1.2376234 |
| 12 | -66.3775797 | 1.0836283 |
| 13 | -66.5042696 | 1.1309649 |
| 14 | -66.6269603 | 1.1766631 |
| 15 | -66.7467346 | 1.2211396 |
| 16 | -66.8645964 | 1.2647709 |
| 17 | -66.9814711 | 1.3079086 |
| 18 | -67.0982571 | 1.3508859 |
| 19 | -67.2158566 | 1.3940313 |
| 20 | -67.3351898 | 1.4376788 |
| 21 | -67.4572353 | 1.4821800 |
| 22 | -67.5830641 | 1.5279133 |
| 23 | -67.7138758 | 1.5752986 |
| 24 | -67.6540747 | 1.7311866 |
| 25 | -67.5972710 | 1.8797141 |
| 26 | -67.5426874 | 2.0228553 |
| 27 | -67.4896545 | 2.1623294 |
| 28 | -67.4375744 | 2.2996888 |
| 29 | -67.3858833 | 2.4363891 |
| 30 | -67.3340425 | 2.5738611 |
| 31 | -67.2815046 | 2.7135667 |
| 32 | -67.2276926 | 2.8570672 |
| 33 | -67.1719685 | 3.0060960 |
| 34 | -67.1136084 | 3.1626559 |
| 35 | -66.9839640 | 3.1116608 |
| 36 | -66.8591738 | 3.0627003 |
| 37 | -66.7380505 | 3.0152954 |
| 38 | -66.6195431 | 2.9690277 |
| 39 | -66.5026789 | 2.9235113 |
| 40 | -66.3865452 | 2.8783860 |
| 41 | -66.2702475 | 2.8333076 |
| 42 | -66.1528940 | 2.7879269 |
| 43 | -66.0335541 | 2.7418923 |
| 44 | -65.9112282 | 2.6948238 |

HIGH RESOLUTION 215

| INDEX | LONGITUDE | LATITUDE |
|---|---|---|
| 1 | -66.5241394 | 2.4280622 |
| 2 | -66.5483894 | 2.3641086 |
| 3 | -66.5723906 | 2.3007910 |
| 4 | -66.5962038 | 2.2379627 |
| 5 | -66.6198807 | 2.1754801 |
| 6 | -66.6434765 | 2.1132042 |
| 7 | -66.6670437 | 2.0509999 |
| 8 | -66.6906281 | 1.9887248 |
| 9 | -66.7142878 | 1.9262448 |
| 10 | -66.7380772 | 1.8634199 |
| 11 | -66.7620449 | 1.8001057 |
| 12 | -66.7862473 | 1.7361581 |
| 13 | -66.8021002 | 1.7420884 |
| 14 | -66.8179464 | 1.7480153 |
| 15 | -66.8337927 | 1.7539396 |
| 16 | -66.8496380 | 1.7598648 |
| 17 | -66.8654842 | 1.7657883 |
| 18 | -66.8813410 | 1.7717135 |
| 19 | -66.8972006 | 1.7776395 |
| 20 | -66.9130707 | 1.7835690 |
| 21 | -66.9289541 | 1.7895010 |
| 22 | -66.9448509 | 1.7954373 |
| 23 | -66.9607620 | 1.8013795 |
| 24 | -66.9364843 | 1.8654450 |
| 25 | -66.9124489 | 1.9288761 |
| 26 | -66.8886013 | 1.9918223 |
| 27 | -66.8648901 | 2.0544235 |
| 28 | -66.8412580 | 2.1168224 |
| 29 | -66.8176527 | 2.1791556 |
| 30 | -66.7940273 | 2.2415613 |
| 31 | -66.7703228 | 2.3041754 |
| 32 | -66.7464924 | 2.3671403 |
| 33 | -66.7224770 | 2.4305970 |
| 34 | -66.6982231 | 2.4946949 |
| 35 | -66.6823530 | 2.4886161 |
| 36 | -66.6664972 | 2.4825449 |
| 37 | -66.6506577 | 2.4764788 |
| 38 | -66.6348257 | 2.4704188 |
| 39 | -66.6190071 | 2.4643612 |
| 40 | -66.6031914 | 2.4583080 |
| 41 | -66.5873795 | 2.4522573 |
| 42 | -66.5715714 | 2.4462083 |
| 43 | -66.5557661 | 2.4401602 |
| 44 | -66.5399542 | 2.4341112 |